

# Compilation of National Progress Reports on the implementation of the Hyogo Framework for Action (2009-2011)

## Priority 2:

*Identify, assess and monitor disaster risks and enhance early warning.*

### Know the Risks and Take Action

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Reporting period: 2009-2011  
Country information as of 18 Aug 2011

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This report compiles inputs by Hyogo Framework for Action (HFA) priority for action 2 from 86 countries' final national HFA progress reports in order to better facilitate analysis and provide examples by priority and region. Inputs are provided in their original reporting language.

Note that these extracts are provided for convenience only and that national HFA progress reports should be considered in their entirety. To view them, visit:

<http://www.preventionweb.net/english/hyogo/progress/reports/>

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An HFA Monitor update published by PreventionWeb

# Africa

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## Algeria (in French)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

#### Level of Progress achieved:

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

#### Is there a national multi-hazard risk assessment available to inform planning and development decisions?

Yes

#### Means of Verification:

- \* Yes: Multi-hazard risk assessment
- \* xxx % of schools and hospitals assessed
- \* xxx schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

#### Description:

En effet, à la suite des nombreuses catastrophes qu'a connues le pays ces dernières décennies (séismes, inondations, feux de forêt, invasions acridiennes, tempêtes et vents violents, ...), beaucoup d'études d'aléa, de vulnérabilité et de risque ont été réalisées par les secteurs et les organismes concernés, et ce, en s'appuyant sur des technologies telles que les SIG et l'outil spatial. Ces études servent de bases fiables pour des actions de réduction de risques par différents secteurs.

Par ailleurs, beaucoup de travaux de recherche (Magister et Doctorat) sont réalisés au niveau de l'université dans le domaine de l'évaluation des aléas et des vulnérabilités.

#### Context & Constraints:

Le défi principal réside dans l'insuffisance d'appropriation par la plupart des collectivités locales (Wilayas, mais surtout communes) des outils de réduction des risques de catastrophes. En effet, les études et outils déjà existants demeurent à l'usage de certaines administrations centrales et organismes spécialisés même si, pour certains cas, il y a eu des applications au niveau local.

De plus, en ce qui concerne le volet « évaluation de la vulnérabilité et des risques », des efforts significatifs devront être poursuivis et développés en confiant aux organismes nationaux scientifiques et techniques, des missions d'animation et d'encadrement d'activités de réduction des risques au niveau local.

D'ailleurs, la démultiplication des actions induites par la mise en œuvre des dispositions de la loi 04-20 devrait permettre de surmonter progressivement ce handicap.

### Priority 2: Core indicator 2

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

\* No: Disaster loss database

\* Yes: Reports generated and used in planning

**Description:**

Le classement approprié pour l'Algérie se situerait entre 3 et 4. En effet, pour certains types de risques, il existe des systèmes élaborés pour l'évaluation du risque et l'archivage des données y afférentes, même si la diffusion des informations nécessaires reste insuffisante.

Dans ce cadre on peut citer les exemples suivants :

- pour le risque inondations, l'existence au niveau de l'ANRH d'une banque de données hydro-climatologiques, dont une base de données spécifique aux crues sur le nord de l'Algérie et un inventaire (avec analyse) des inondations, ainsi que la diffusion de bulletins et annuaires y afférents.
- Une banque de données météorologiques existe à l'Office National de la Météorologie; le renforcement du réseau d'observation pour la mesure et la quantification des aléas climatiques est en cours. De nouvelles stations sont annuellement mises en exploitation pour améliorer la couverture et répondre aux demandes spécifiques.
- S'agissant des feux de forêts, des systèmes d'évaluation, d'archivage et de communication des informations sont opérationnels depuis de longues années. Des situations sont régulièrement établies et communiquées à différents niveaux (presse et radio). Les informations sont également disponibles sur site web de la DGF ([www.dgf.org.dz](http://www.dgf.org.dz)).
- S'agissant du risque sismique, des banques de données spécifiques existent au niveau des institutions spécialisées (CRAAG et CGS) ; elles concernent les enregistrements sismologiques et accélérométriques et les rapports post-séismiques.

**Context & Constraints:**

Le défi principal réside dans la généralisation de l'évaluation, de l'archivage et de la vulgarisation, notamment au niveau local, pour tous les types de risques de catastrophes qui menacent le pays. Des progrès dans ce domaine devraient apparaître avec la mise en œuvre des volets et mécanismes y afférents prévus par la loi 04-20.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

No

**Means of Verification:**

\* No: Early warnings acted on effectively

\* Yes: Local level preparedness

\* No: Communication systems and protocols

\* No: Active involvement of media in early warning dissemination

### **Description:**

Des systèmes d'alerte rapide satisfaisants sont en place dans certains secteurs ou domaines comme par exemple :

- Système (national et international) de surveillance et d'alerte des invasions acridiennes.
- Système national d'alerte par réseau radioélectrique pour les incendies de forêts. Le matériel de transmissions utilisé, outre d'informer les populations en cas de menace grave, permet également de coordonner les actions des intervenants (autorités locales, protection civile et autres).
  - Système national d'alerte rapide pour les déversements massifs d'hydrocarbures.
- Système national d'alerte rapide par radio ou téléphone et systèmes d'alerte sonore (type hurleurs à pavillon) des déversements ou ruptures de barrages.
- Systèmes pilotes de prévision et d'alerte aux crues du bassin versant du Sébaou (Région de Tizi-Ouzou) et du bassin de l'oued El Harrach (Wilaya d'Alger). Par ailleurs, il y a lieu de signaler la modernisation et l'automatisation du réseau d'observations hydro climatologiques en vue de mettre en place à terme, d'autres systèmes de prévision et d'annonce de crues.
- Systèmes d'alerte rapide spécialisés pour les grandes zones industrielles (pétrochimiques et pétrolières en particulier)
- Systèmes d'alerte météorologique précoce pour les tempêtes et vents violents qui se déclinent comme suit :
  - Système d'alerte météorologique sous forme de Bulletins Météorologiques Spéciaux concernant les aléas pluie, orage, neige, vents, canicule et autres, élaborés et diffusés chaque fois que des seuils de sévérité de l'aléa prédéfinis sont attendus.
  - Système d'alerte marine concernant les tempêtes méditerranéennes, les fortes houles et la pollution marine accidentelle.
- Systèmes (en cours de formalisation) d'alerte rapide (différencié en 3 niveaux en fonction de la magnitude et de la vulnérabilité de la région touchée) pour les séismes et d'alerte précoce pour les inondations (Wilaya d'Alger).

### **Context & Constraints:**

Les systèmes ne font pas l'objet de simulations régulières et d'évaluation.

Les principaux défis à relever résident dans la généralisation des systèmes d'alerte au maximum de risques possibles, leur vulgarisation systématique au niveau des communautés concernées.

Même si la plupart des wilayas disposent de radios locales intervenant dans les systèmes d'alertes météo, il apparaît par ailleurs, nécessaire de pouvoir doter les populations locales de moyens de communication autonomes. Dans ce cadre, et à titre d'exemple, les populations enclavées à l'intérieur des forêts, devraient être pourvues de moyens de communications tels que postes radio ou radio rurale TSF pour établir un contact permanent avec elles.

Il apparaît également, nécessaire de rendre redondants et de moderniser aussi rapidement que possible les systèmes de communication en utilisant les technologies spatiales (télécommunications par satellite).

### **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### **Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

#### **Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

#### **Description:**

Le risque acridien est le domaine où l'évaluation des risques aux niveaux national et local prend systématiquement en compte les risques transnationaux pour sa réduction.

Dans ce cadre la coopération a été institutionnalisée entre les pays du Maghreb et les pays sahéliens concernés par la création d'une commission régionale de lutte antiacridienne sous l'égide de la FAO.

Par ailleurs, il y'a lieu de signaler des coopérations pour l'alerte et l'évaluation des risques transnationaux dans les domaines suivants :

- Feux de forêts (coopération algéro-tunisienne) ;
- séismes et tsunamis (à l'échelle euro-méditerranéenne) ;
- Météo (coopération régionale) ;
- Pollution marine par les hydrocarbures (accord sous régional algérie-maroc-tunisie et un mémorandum d'entente avec l'Espagne).

On peut illustrer cette coopération par les actions ou exemples suivants :

- l'Algérie est membre de la Charte de l'ONU « espace et catastrophes majeures », permettant la mise à disposition des images d'évaluation des dégâts.
- implantation d'un Bureau d'Appui Régional d'utilisation de l'information d'origine spatiale contre les catastrophes naturelles du programme UN-SPIDER.
- Coopération pour la mise en œuvre d'un système d'alerte précoce à la sécheresse, basé sur les techniques spatiales avec la Tunisie et le Maroc.

On peut également citer la participation des forces armées algériennes aux activités suivantes :

- deux exercices internationaux, en 2009 et 2010 (Tel El Bahr), de lutte contre la pollution marine, dans les ports d'Arzew et de Bejaia;
- un exercice en 2009 avec le partenaire suisse, sur la protection NBC;
- un exercice régional en 2009 (Maghreb) sur le traitement d'un incident chimique;
- Des stages de formation à la gestion des risques, et des exercices sur l'assistance humanitaire en cas de catastrophe. Dans le cadre du dialogue méditerranéen, de l'OTAN et de « l'Initiative 5+5 Défense »

#### **Context & Constraints:**

Les défis à relever résident essentiellement dans l'approfondissement de la coopération régionale dans les domaines cités précédemment et dans sa généralisation aux autres domaines ou types de risques où cela est possible et souhaitable.

L'Algérie a proposé dans le cadre des travaux du conseil des Ministres Arabes de l'Habitat et de l'Urbanisme, la création du « Centre Arabe de Prévention du Risque Sismique et des Autres Catastrophes Naturelles » dont les statuts sont en cours de ratification. Le démarrage de ce futur centre, dont le siège sera à Alger, pourra certainement contribuer à l'élargissement de cette coopération par les opportunités techniques qu'elle offrira.

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## Botswana (in English)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

#### Level of Progress achieved:

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

#### Is there a national multi-hazard risk assessment available to inform planning and development decisions?

Yes

#### Means of Verification:

- \* No: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

#### Description:

A Hazard Vulnerability and Risk Identification study was commissioned by the Government of Botswana in 2008. The study highlights actual and potential disaster threats in the country with a detailed analysis by using GIS.

#### Context & Constraints:

The findings of the study are up to the district or urban level, the study has not incorporated risk data at village and community levels.

### Priority 2: Core indicator 2

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

#### Level of Progress achieved:

2 - Some progress, but without systematic policy and/ or institutional commitment

#### Are disaster losses systematically reported, monitored and analysed?

Yes

#### Means of Verification:

- \* Yes: Disaster loss database
- \* Yes: Reports generated and used in planning

**Description:**

The NDMO with the help of District Disaster Management Committees (DDMC) collects the data on disaster impacts. The data further analysed by Central Statistics Organisation (CSO) and disseminated country wide for the reference and future planning .

**Context & Constraints:**

The NDMO still lacks a state of the art system of data collection and compilation , many sectors who are responsible to provide data to NDMO also lack capacity to collect and analyse the data.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

5 - Comprehensive achievement with sustained commitment and capacities at all levels

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

**Description:**

The Department of Meteorological Services and NDMO issues earlywarning regularly to the District Officials and further this warning is communicated to the community. Besides Radio, Television and News papers , Mobile phone SMS are used to disseminate early warning information.

**Context & Constraints:**

Most of the early warning dissemination is done by using electronic communication equipments. The country needs to employ more sophisticated and non-conventional energy using equipments.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

**Description:**

The Southern African Development Communities (SADC) has got the mandate to provide information related trans-boundary disaster risks. The respective departments in the country such as Water Affairs have some bilateral agreements with the countries in the region to share the information and data

**Context & Constraints:**

The SADC based early warning system is non-functional and requires capacity building.

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**Burundi** (in French)**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

**Means of Verification:**

- \* Yes: Multi-hazard risk assessment
- \* 10 % of schools and hospitals assessed
- \* Pas encore évaluées schools not safe from disasters (specify absolute number)
- \* Yes: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

- Evaluation sommaire de la vulnérabilité et des risques dans certaines provinces disposant des Plans de Contingence (action continue);
- Le Burundi a besoin d'actualiser sa cartographie des risques pour pouvoir mieux les évaluer;
- Des standards nationaux d'évaluation multirisques n'ont pas encore établis

**Context & Constraints:**

- Manque de législation en RRC permettant de percer dans tous les secteurs pour l'évaluation des risques partout;
- Manque d'expertise pour l'évaluation approfondie pouvant dégager des données statistiques

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Are disaster losses systematically reported, monitored and analysed?**

No

**Means of Verification:**

- \* No: Disaster loss database
- \* No: Reports generated and used in planning

**Description:**

Des pertes dues aux catastrophes sont constatées et jamais analysées.

**Context & Constraints:**

- Manque du personnel qualifié pour la collecte des données relatives aux pertes dues aux catastrophes;
- Manque de logiciel de traitement d'informations collectées pour une planification ultérieure.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

-- Nothing reported within this timeframe. --

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* No: Local level preparedness
- \* No: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

**Description:**

Des systèmes d'alerte précoce existent dans certains secteurs comme la Santé et l'Environnement et leur

fonctionnement est efficace.

**Context & Constraints:**

Absence d'un système d'alerte précoce centralisé en rapport avec la RRC. Les perspectives d'avenir est d'établir les organes que recommande le Système d'Information et de Communication validé par la Plate Forme Nationale de Prévention des Risques et de Gestion des Catastrophes.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

**Description:**

Le Burundi est membre des Organismes Régionaux et Internationaux en charge des aspects de la RRC et ACC comme UNSIPC, OIPC, Golden Spear, Communauté Est Africaine, Règlement sanitaire International 2005, Centre Africain d'Application Météorologique au Développement, Initiative du Bassin du Nil, Autorité du Lac Tanganyika, etc.

**Context & Constraints:**

Le Burundi a souvent des problèmes d'honorer les engagements vis à vis de certains organismes particulièrement en matière de contributions financières.

**Cape Verde** (in Spanish)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

**Means of Verification:**

- \* Yes: Multi-hazard risk assessment
- \* 6 Escolas; 3 hospitais % of schools and hospitals assessed
- \* 5 schools not safe from disasters (specify absolute number)
- \* Yes: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

Para a avaliação multi-riscos o SNPC tem utilizado a metodologia proposta pela Autoridade Nacional de protecção Civil de Portugal, ou seja, o Guia para a Caracterização de risco no âmbito da Elaboração de Planos de Emergência de Protecção Civil).

Em 2009 foi assinado um protocolo de cooperação entre o Departamento de Ciências e Tecnologias da Universidade de Cabo Verde, ITER - Instituto Tecnológico e de Energias Renováveis, LEC - Laboratório de Engenharia Civil de Cabo Verde, SNPC - Serviço Nacional de Protecção Civil, com vista a redução do risco vulcânico e à criação do Observatório Vulcanológico de Cabo Verde

Para o apoio ao mapeamento das zonas de riscos, foram adquiridos durante este período 5 GPS portáteis para aumentar a precisão para a colheita de dados relativos às zonas de risco.

Elaboração da Cartografia de Risco ligada à questão "Género", em curso.

Estrutura da Plataforma Nacional para RRC , elaborada e em fase de implementação, propondo o envolvimento de um número considerável de parceiros que têm implicação directa na RRC em Cabo Verde;

Recursos financeiros disponibilizados pela UNISDR no valor de 13 000 USD, com o objectivo de reforçar a plataforma nacional.

Para preparar a população a fim de fazer face ao acidentes graves, têm se feito as seguintes actividades: Exercício de simulação nas escolas seguintes escolas: Cónego Jacinto, Pedro Gomes, Liceu de S. Domingos e de S.º Domingos dos Órgãos;

Está em elaboração o Plano Emergência Interno da Escola Secundaria Olavo Moniz, no Município do Sal.

Realização de exercício de simulação no Hospital Central Agostinho Neto - HAN, e no Hospital Regional Santiago Norte – HRSN.

**Context & Constraints:**

A nível nacional existe a necessidade de adoptar critérios uniformes para a avaliação de riscos, e também o estabelecimento de uma norma para a produção cartográfica em Cabo Verde.

O 1.º Workshop Internacional sobre Cartografia e Geodesia será realizado em breve, em parceria com o Ministério de Descentralização, Habitação e Ordenamento do Território (MDHOT), onde será discutido

vários temas ligados a produção cartográfica em Cabo Verde e também será discutida a uniformização dos critérios para a produção de mapas de temáticas.

Está em curso a elaboração do projecto de cartografia de risco a nível nacional, em parceria com o Ministério da Descentralização, Habitação e de Ordenamento do Território, que posteriormente será apresentada aos parceiros para busca de financiamento.

Existe a necessidade de massificar a formação na elaboração dos Planos de Emergência Internos em hospitais e escolas

## **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### **Are disaster losses systematically reported, monitored and analysed?**

-- Nothing reported within this timeframe. --

### **Means of Verification:**

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

### **Description:**

O Instituto Nacional de Meteorologia e Geofísica (INMG), é a instituição responsável para o acompanhamento da situação meteorológica no país, continua sendo uma dos principais parceiros do SNPC, com o fornecimento de dados diários, relativos à situação meteorológica de Cabo Verde.

O Projecto MIAVITA, contemplou a instalação de uma rede sismográfica nas ilhas do Fogo, e Brava, e com os fundos do Estado de Cabo Verde em Santo Antão foi instalada uma rede de monitorização da actividade sísmica, colocação de um sistema de transmissão de dados, a colocação de uma rede geodésica para medição das deformações do terreno na ilha do Fogo, bem como a elaboração do draft da arquitectura do WebGIS (Sistema de Informação Geográfica com recurso a internet para a gestão do risco vulcânico). Com esta aplicação está-se a finalizar a cartografia de risco da ilha do Fogo e a modelação numérica dos vários perigos vulcânicos (queda de piroclásticos, fluxos de lava, etc...).

O Projecto Makavol prevê a instalação para o próximo mês de Março uma Rede GPS instrumental composta de 4 antenas GPS e de uma Rede Sísmica instrumental composta por 3 estações sísmicas para a vigilância vulcânica da ilha do Fogo.

Foram realizadas várias colheitas de amostras de gases vulcânicos para seguimento da actividade vulcânica, nas ilhas do Fogo, Brava e São Vicente.

Através do Projecto EMERNET com Canárias esta prevista a instalação do número Único Nacional de Emergência 112.

Existência de um Sistema de Comunicações HF para comunicação entre os Centros Operacionais de P. Civil.

Existência de uma linha verde de emergência (800 11 12).

O SNPC, Instituto Nacional de Meteorologia e Geofísica (INMG), Universidade de Cabo Verde, Direcção Geral do Ambiente, Instituto Nacional de Desenvolvimento Agrícola e a UNDP, estão a implementar o projecto SIERA (Sistema de Inventário e Avaliação do Risco), onde se prevê a criação de uma Base de Dados para os riscos maiores que afectaram Cabo Verde, a criação de um Observatório de Catástrofes, e da elaboração de um perfil de risco de Cabo Verde.

**Context & Constraints:**

O Sistema de Rádio difusão local, de Aviso e Alerta às populações da localidade de Chã das Caldeiras, ilha do Fogo, em caso de erupção vulcânica, composto por 15 grandes altifalantes, que se encontra-se instalado desde 2006, precisa de manutenção e revisão.

O Sistema interno de comunicação VHF funciona com algumas limitações, devido à orografia das ilhas bem como à falta de estações repetidoras.

Mais apoio da comunidade internacional, relativamente ao fornecimento de equipamentos adequados de alerta precoce para as principais ameaças.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

**Description:**

Diariamente o Instituto Nacional de Meteorologia e Geofísica (INMG), que é a instituição responsável para o acompanhamento da situação meteorológica no país, fornece os dados relativos à situação meteorológica ao SNPC, e também aos principais órgão de comunicação social.

O Projecto MIAVITA, contemplou a instalação de um sismógrafo numa escola secundária da ilha do Fogo para fins didácticos, e o mesmo projecto prevê a instalação de mais sismógrafos em escolas da Ilha do Fogo e Brava. Informação sobre a vigilância vulcânica tem sido divulgada nos órgãos de comunicação social e na internet. Já foi apresentado a primeira versão do mapa de risco vulcânico da Ilha do Fogo que está sendo utilizada pelos técnicos que trabalham na área. Para melhor divulgar os dados da vigilância vulcânica, está a ser desenvolvida um WebGIS (Sistema de Informação Geográfica com recurso a internet para a gestão do risco vulcânico).

O Projecto Makavol tem feito a divulgação de algum resultado em congressos e encontros técnicos e prevê a criação de um folheto informativo para a divulgação dos resultados da observação vulcânica. São várias as campanhas de sensibilização e informação pública que este projecto tem desencadeado.

O SNPC dispõe de dois programas radiofónicos de sensibilização e informação pública, uma na rádio nacional (“Protecção Civil Mais Vale Prevenir”), e na rádio educativa (“Educação e Protecção Civil”). Também dispomos do nosso site [www.SNPC.cv](http://www.SNPC.cv), onde se encontram um conjunto de recomendações, medidas de auto-protecção e informações sobre a protecção civil.

Anualmente o SNPC em parceria com o Sistemas das Nações Unidas em Cabo Verde lança campanha de sensibilização versando diferentes temas, chamando assim a atenção e sensibilizando a população para os diferentes riscos. Para 2010 e 2011, o tema da campanha é: “Tornar as Cidades Resilientes, a minha Cidade está a preparar-se.”

Existem diferentes mecanismos para fazer chegar a informação à população. Por exemplo, existe um Sistema de Comunicações HF para comunicação entre os Centros Operacionais de Protecção Civil das diferentes ilhas, existe um número verde emergência (800 11 12).

No âmbito do projecto SIERA prevê-se a divulgação de um grande número de informação relativo às diferentes tipologias de riscos em Cabo Verde, principalmente com a elaboração do perfil de risco de Cabo Verde e implementação do Observatório Nacional de Risco.

Para preparar a população a fim de fazer face a uma catástrofe são vários os exercícios de simulação que o SNPC tem realizado, como é o exemplo do exercício de simulação, tendo como cenário as inundações no Município da Ribeira Brava, com a participação das autoridades locais, agentes de protecção civil e sociedade civil.

Participação no Exercício parcial realizado no Aeroporto internacional da Praia COESÃO – 2010, e no Exercício total do aeroporto internacional da Boa Vista .

Participação no Exercício de Simulação que teve lugar no Município do Tarrafal de Santiago, no âmbito do término da formação de reciclagem dos 45 bombeiros dos Municípios de S. Tiago.

Realização de um exercício de evacuação do edifício das Nações Unidas, na Cidade da Praia.

#### **Context & Constraints:**

Há necessidade de promoção de intercâmbio e divulgação dos dados para avaliação do risco a nível internacional, regional, nacional e local.

Verifica-se a falta de mais apoio no melhoramento dos métodos e capacidades científicas e técnicas de avaliação de riscos, vigilância e alerta precoce, mediante a investigação, associação, formação e o fomento da capacidade técnica.

#### **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

#### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

#### **Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

## Means of Verification:

- \* Yes: Programmes and projects addressing trans-boundary issues  
> Relatório 4ª. Conferencia Regional sobre Inundações na Africa do Oeste e Central (2010)  
[http://www.preventionweb.net/files/17661\\_rapport\[1\].pdf](http://www.preventionweb.net/files/17661_rapport[1].pdf) [PDF ]
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

## Description:

As avaliações dos riscos nacionais e locais são elaborados com base nas directrizes da Estratégia Regional Africana para RRR e no Mecanismo da CEDEAO para RRC bem como do seu Programa de Acção.

Em 2010, realizamos em Cabo Verde 4 Conferências Internacionais, a saber:

- 4ª Conferencia Regional sobre inundações e Catástrofes Naturais na África Ocidental e Central – Cidade da Praia – 5- 7 Maio 2010. O encontro visava igualmente, reforçar a parceria entre os serviços de protecção civil, as Sociedades Nacionais da Cruz Vermelha e do Crescente Vermelho bem como os outros parceiros na redução dos riscos e resposta às catástrofes. Contou com a participação dos países membros da CEDEAO, África Central e Mauritânia.
- Workshop Regional sobre a Implementação do Sistema de Inventario e Analise para a Avaliação de Riscos (SIERA) na África Ocidental – Praia, 29 de Junho – 1 de Julho de 2010. Um dos objectivos principais desse Workshop foi o lançamento oficial do Projecto-piloto - SIERA, em 4 países piloto da nossa região.
- Workshop Internacional Makavol, Fogo 2010 sobre Gestão de Risco Vulcânico em ilhas - Praia 4 -9 de Dezembro de 2010. É uma das três Reuniões Internacionais sobre Vulcões sustentado pelo projecto “ Intensificação das capacidades de R&D para contribuir para a redução do risco vulcânico na Macaronésia (MAC/3/C161)”, co-financiado pelo Programa de Cooperação Transnacional Madeira-Canarias-Açores da EU (MAC 2007-2013), com a colaboração do Observatório Vulcanológico e Geotérmico dos Açores, Fundação Canária ITER, Sociedade Vulcanológica Espanhola e a Associação Vulcanológica das Ilhas Canárias (AVCAN).
- Atelier de Formação em Avaliação Rápida de Necessidades Humanitárias e Lançamento da Campanha Cidades Resilientes – Praia 7 – 9 de Dezembro de 2010. Pretendeu-se com esta formação reforçar de uma maneira geral, as capacidades dos 22 Municípios de Cabo Verde e demais instituições que trabalham directamente na resposta às catástrofes. Foi financiado pelo PNUD Cabo Verde e contou com a parceria do OCHA-Dakar.

Participação em Reuniões ligado à RRC:

- IIª. Conferência Ministerial sobre Redução dos Riscos de Catástrofes Nairobi, Quénia, 14 – 16 Abril de 2010 – A Delegação foi chefiada por S. Excia. o Ministro da Administração Interna, Dr. Lívio Lopes Fernandes e composta pelo Presidente do SNPC, Ten. Coronel Alberto Carlos Barbosa Fernandes.

- Realização na Cidade da Praia do Seminário Nacional sobre a Adaptação das Mudanças Climáticas
- Conferencia Internacional "Cities on Volcanoes 6 – CoV6 – Tenerife 2010 – Tenerife, ilhas Canárias, Espanha – 31 de Maio a 4 de Junho de 2010.
- Visita de "Troca de Experiencia Sul-Sul ente as Plataformas Nacionais para a Redução dos Riscos de Catástrofes em África – 24 – 26 de Agosto 2010, Nairobi, Quénia. Participaram as Plataformas Nacionais de Cabo Verde, Costa do Marfim, Burundi, Senegal e Quénia.
- Atelier de Validação das Directivas sobre a criação e o reforço das Plataformas Nacionais de Redução de Riscos de Catástrofes nos países membros da CEDEAO – 6 – 7 de Julho de 2010, Banjul, Gâmbia.
- Atelier de Formação dos Peritos da Equipa de Intervenção da CEDEAO (EERT) – 26-30 de Julho, Abuja, Nigéria.
- Missão de Apoio à Guiné Bissau – 25 de Março -2 de Abril . Apoio na criação de um Serviço Nacional de Protecção Civil da Guiné Bissau.
- Missão UNDAC (Equipa das Nações Unidas de Avaliação e Coordenação de Catástrofes ao Benin- 14-29 Out. 2010. Cabo Verde esteve representado pelo membro da UNDAC, Ten. Coronel Alberto Carlos Barbosa Fernandes.

#### **Context & Constraints:**

As principais limitações que o SNPC tem verificado ao longo destes anos, tem a ver com a barreira linguista, visto Cabo Verde tem como língua oficial o português e se encontrar enquadrada numa região francófona. O contacto que fazemos com os países vizinhos a nível de cooperação ou troca de experiências tem sido em francês ou inglês. Têm-se verificado nalgumas reuniões problemas ligados a tradução dos documentos, nomeadamente da francesa para inglesa e vice-versa, e a falta de tradução de documentos importantes para o português.

Cabo Verde é um país arquipelágico e o único que não tem fronteiras terrestres com o continente Africano, e este afastamento levanta alguns problemas de comunicação com os países do continente africana e limita a participação de mais agentes de protecção civil de Cabo Verde em reuniões, troca de experiências, seminários, workshop.

## **Comoros** (in French)

### **Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

#### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

#### **Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

No

#### **Means of Verification:**

\* No: Multi-hazard risk assessment

- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

### **Description:**

Une première étude sur les risques naturels et la protection civile a été réalisée en Mars 2002, financée par le PNUD.

Plus récemment, dans le cadre du projet COSEP du PNUD, une Etude des vulnérabilités du pays a été réalisée, ainsi qu' une évaluation de l'état de santé des récifs et des mangroves.

L'UNICEF a appuyé le Ministère de l'Education pour réaliser une étude sur l'éducation en situation d'urgence avec la mise en place d'une base de données des établissements scolaires et des risques qu'ils encourent.

Des études de Vulnérabilité et de Capacité (EVC) ont été menées dans 26 villages en 2009-2010 avec l'appui du Croissant Rouge Comorien.

Enfin, plusieurs études scientifiques ont été menées dans le pays, comme par exemple: le diagnostic de l'état de l'environnement aux Comores réalisé avec l'appui conjoint de l'UNESCO, du PNUD et de l'IUCN (1993), la thèse de H. Nassor intitulée "contribution à l'étude du risque volcanique sur les grands volcans boucliers basaltiques : le Karthala et le Piton de la fournaise" (septembre 2001), la thèse de C. Savin intitulée "circulation hydrothermale au sein du volcan Karthala" (septembre 2001)...

La coopération française avait proposé d'appuyer le pays pour collecter et archiver les études scientifiques menées avec des universitaires comoriens et français.

Ces études restent cependant à approfondir pour couvrir le territoire national, et la centralisation de toutes les informations scientifiques sur les aléas et les risques est considérée comme une priorité (à l'Université, au CNDRS, ou dans une autre structure appropriée).

### **Context & Constraints:**

De nombreuses études scientifiques ont été faites dans le passé et de nouvelles études sont en cours de réalisation mais trop souvent, ces études sont difficiles à retrouver, et des efforts importants doivent être faits pour un meilleur archivage. Il y a un manque de coordination dans ce domaine.

Par ailleurs, les résultats de ces études ne sont pas pris en compte dans les politiques de développement du pays : inexistence d'un Plan d'Occupation des Sols actualisé, ou de tout autre outil de planification/urbanisation.

Le pays fait face à un problème sérieux de répartition du foncier, qui est cause de nombreux conflits entre communes...

### **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Are disaster losses systematically reported, monitored and analysed?**

-- Nothing reported within this timeframe. --

**Means of Verification:**

\* No: Disaster loss database

\* No: Reports generated and used in planning

**Description:**

Il n'y a pas d'évaluation systématique des dégâts suite à des catastrophes, ni d'archivage de ces informations.

Cependant, le COSEP a mis en place un formulaire d'évaluation des dégâts et a formé un certain nombre d'acteurs à l'usage de ce formulaire. Des moyens de géo-localisation des zones touchées sont disponibles, mais les procédures pour l'évaluation et l'archivage sont à préciser et le système d'archivage à identifier.

**Context & Constraints:**

Les acteurs nationaux de la réduction des risques de catastrophes manquent de moyen de communication suffisants (internet, téléphone, caméra, etc.).

Par ailleurs, lorsque des évaluations sont menées suite aux catastrophes, le partage d'informations entre les partenaires nationaux est défaillant et n'est pas systématique: un mécanisme de partage d'informations et de données (procédures et outil) doit être établi au niveau national.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

-- Nothing reported within this timeframe. --

**Means of Verification:**

\* No: Early warnings acted on effectively

\* No: Local level preparedness

\* No: Communication systems and protocols

\* No: Active involvement of media in early warning dissemination

**Description:**

Des systèmes d'alerte précoce existent pour le risque d'éruption du Karthala (le centre de surveillance est l'Observatoire Volcanologique du Karthala), pour le risque cyclonique et pour le risque de tsunami (la surveillance est menée par la Météorologie nationale), et enfin pour le risque épidémique (Comité de lutte contre les épidémies).

Cependant, ces systèmes d'alerte précoce ne sont pas suffisamment connus de la population. L'alerte pour le volcan a été validée en 2010, et testée au niveau de 16 villages cibles, dans le cadre du projet DIPECHO I. Le système d'alerte précoce pour le cyclone a été remis à jour et validé en Novembre 2010, et devrait être testé en 2011 avec l'appui d'OCHA. Le système d'alerte précoce tsunami est en cours de développement avec l'appui de l'UNESCO-COI, et devrait être finalisé dans le cadre du projet COSEP financé par le PNUD. Le système d'alerte épidémique est formellement établi mais n'a pas été testé. La fiabilité de ces systèmes n'est pas vérifiée à ce jour.

Des formations sur les procédures de l'alerte ont été organisées auprès des acteurs locaux (mairies, préfectures) aux mois de Novembre et Décembre 2010 dans l'ensemble du territoire, dans le cadre du projet IO Consortium. Par ailleurs, l'UNESCO-COI a appuyé l'organisation de deux ateliers en Décembre 2010 et Mars 2011, en collaboration avec le bureau de la météorologie nationale (modélisation du risque de tsunami et développement de procédures standards pour l'alerte et la réponse à l'aléa tsunami).

#### **Context & Constraints:**

Il y a une insuffisance de personnel qualifié et de matériel de surveillance au niveau des centres d'alerte (OVK, Météo, et comité national de lutte contre les épidémies). Le gouvernement n'a pas de budget pour appuyer la maintenance des équipements de surveillance et ces systèmes d'alerte sont totalement dépendants de l'aide extérieure (gouvernement français, système des Nations Unies, etc.).

La formation régulière de la population sur ces systèmes d'alerte précoce est à envisager et à planifier afin de renforcer la préparation aux risques de catastrophes.

#### **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

#### **Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

#### **Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

#### **Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* No: Regional and sub-regional strategies and frameworks
- \* No: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

#### **Description:**

Les Comores font partie de la Commission de l'Océan Indien qui a de nombreux programmes touchant à la Gestion des Risques de Catastrophes: le programme RSIE traite du risque épidémique, la Stratégie

régionale d'adaptation aux changements climatiques devant être finalisée en Mai 2011, le projet Polmar, le progeco, un projet de développement de la recherche universitaire (financement BaD, pilotage de la COI) en cours, et enfin un projet COI en gestion des risques de catastrophes qui va démarrer prochainement.

Le risque tsunami est traité à un niveau régional dans le cadre du projet ICG-IOTWS de l'UNESCO-COI, avec la mise en place des centres d'alerte régionaux (inde, indonésie, australie), et le renforcement des capacités d'identification des risques, de modélisation, etc.

D'autres initiatives régionales peuvent être signalées :

- Le projet EVOSS de l'union européenne;
- Le projet CMRS (centre météorologique) basé à la Réunion;
- La mise en place d'un master en télédétection à l'Université de la réunion;
- La coopération régionale pour la recherche et les sauvetages en mer (projet SAR);
- la Convention de Nairobi pour la protection, la gestion et la mise en valeur du milieu marin et des zones côtières de la région de l'Afrique orientale, qui favorise la coopération technique et scientifique, notamment pour l'évaluation et la gestion de l'environnement.

A noter enfin que les Comores sont membre de l'Easbrig (brigade d'intervention de l'afrique de l'est): une formation a été dispensée aux Comores en Mars 2011 pour préparer une intervention suite à une crise. La mise en place d'une plateforme régionale d'intervention est prévue.

#### **Context & Constraints:**

Les Comores sont membres de la Commission de l'Océan Indien et donc, à cet égard, bénéficient des projets régionaux pour les risques de catastrophes (en cours ou en projet). Ces îles font face à des risques similaires (cyclones, tsunami, fortes pluies, épidémies), aussi cette composante régionale est capitale.

La participation des Comores à la Convention de Nairobi est aussi une opportunité pour développer ses capacités.

La dépendance forte du pays à l'aide extérieure est particulièrement illustrée dans le domaine de la recherche et de la connaissance des risques. Il est donc extrêmement important que le pays renforce ses collaborations régionales dans ce domaine.

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## **Cote d'Ivoire** (in French)

### **Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

#### **Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

#### **Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

No

#### **Means of Verification:**

\* No: Multi-hazard risk assessment

\* 0 % of schools and hospitals assessed

\* 0 schools not safe from disasters (specify absolute number)

\* No: Gender disaggregated vulnerability and capacity assessments

\* No: Agreed national standards for multi hazard risk assessments

**Description:**

Il convient de noter que les risques les plus probables en Cote d'ivoire sont le risque d'inondation, d'éboulement de terrain, de feux de brousse et d'érosion côtière, mais il n'existe pas d'évaluation des risques multi-catastrophes en tant que tel. Des études scientifiques ont été réalisées par certains chercheurs mais elles n'intègrent pas généralement les informations sur les vulnérabilités des populations.

**Context & Constraints:**

Les défis rencontrés sont le manque d'un réseau national d'acquisition des données environnementales et l'absence d'une synergie d'action entre les différentes structures.

Pour y remédier il faut mettre en place une base nationale de données environnementales

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Are disaster losses systematically reported, monitored and analysed?**

No

**Means of Verification:**

\* No: Disaster loss database

\* No: Reports generated and used in planning

**Description:**

Les différentes informations sur les pertes liées aux catastrophes, lorsqu'elles existent, sont disséminées dans les structures qui les collectent et ne sont pas archivées dans un système national de données environnementales qui permette de les divulguer à temps voulu.

**Context & Constraints:**

Un des défis à relever au niveau national est la mise en place d'un véritable système d'enregistrement et d'analyse des pertes liées aux catastrophes comprenant les informations sur les risques et la vulnérabilité.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

## **Do risk prone communities receive timely and understandable warnings of impending hazard events?**

No

### **Means of Verification:**

- \* No: Early warnings acted on effectively
- \* No: Local level preparedness
- \* No: Communication systems and protocols
- \* No: Active involvement of media in early warning dissemination

### **Description:**

La Côte d'Ivoire dispose de programmes et de campagnes de sensibilisation relatifs aux aléas naturels, principalement en ce qui concerne les épidémies et les feux de brousses. Par ailleurs en ce qui concerne les phénomènes météorologiques, la Direction de la Météorologie Nationale édite et diffuse des bulletins d'informations. Toutefois il n'existe pas de système d'alerte précoce.

### **Context & Constraints:**

La Direction de la Météorologie Nationale est, de fait, chargée de l'alerte précoce au niveau du pays. Elle a cependant de gros problèmes d'équipements: le pays ne possède que 14 stations synoptiques qui ne sont pas toujours opérationnelles simultanément. Par ailleurs, la diffusion de ces informations dans les médias nationaux est payante, ce qui constitue actuellement un handicap sérieux.

Le défi majeur à relever reste fondamentalement la mise en place de systèmes sectoriels d'alerte précoce des aléas naturels ainsi que des protocoles de communications.

## **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

## **Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

### **Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* No: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

### **Description:**

Compte tenu du caractère régional de certains risques, l'Etat participe à des programmes et projets régionaux. on peut relever les cas d'inondations, d'érosion côtière, d'épidémie (méningite), d'épizootie (grippe aviaire).

**Context & Constraints:**

A ce niveau aussi, le manque de coordination et de bases de données suffisamment renseignées ne permet pas toujours d'atteindre les résultats escomptés. Le défi à relever reste la contribution effective de chaque pays aux projets et programmes sous régionaux existants ou à venir.

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**Ghana** (in English)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

**Means of Verification:**

- \* Yes: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* Yes: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

There is adequate identification of hazards, constant monitoring and assessment by the Technical Advisory Committees, (key stake holders) . The identified hazards include: Geological, Hydrometeorological, Fires, Pests & Insects Infestations, Diseases & Epidemics, Nuclear & Radiological, Man-Made (Conflicts, vehicular/boat accidents etc). In 2007 Hazards Maps were prepared for four hazard types namely: Hydrometeorological, Fires, Pests and Insects Infestation and Geological . Adequate expertise and equipment exist at the national level.

**Context & Constraints:**

While adequate expertise and equipment for monitoring and early warning exist at the national level, the same cannot be said for the regional, district and community levels. Additionally, capacity to process, analyse and utilise data collected are not very strong at the regional, district and community level. Negative cultural practices, beliefs and attitudes serve as additional constraints.

## Priority 2: Core indicator 2

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### Level of Progress achieved:

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### Are disaster losses systematically reported, monitored and analysed?

Yes

### Means of Verification:

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

### Description:

There are lead sectors or agencies to monitor, collect, collate and store data or information on relevant risks. Data especially on hydrometeorological and hydrological, etc risks and vulnerabilities are released on request.

Available information or data are posted on the NADMO website: [www.nadmo.org](http://www.nadmo.org)

Some hazards have been mapped to enhance monitoring and assessment of risk and vulnerability reduction.

### Context & Constraints:

There is a great challenge in the area of data collection, processing, storage and retrieval.

## Priority 2: Core indicator 3

*Early warning systems are in place for all major hazards, with outreach to communities.*

### Level of Progress achieved:

2 - Some progress, but without systematic policy and/ or institutional commitment

### Do risk prone communities receive timely and understandable warnings of impending hazard events?

Yes

### Means of Verification:

\* Yes: Early warnings acted on effectively

\* Yes: Local level preparedness

\* Yes: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

### Description:

There are some seismographs for the monitoring of earth tremors/quakes. The Agricultural sector also has systems for the monitoring and early warnings on pest and insect infestation.

Some major rivers have hydrological gauges for monitoring floods. The Meteorological Agency accesses the World Meteorological satellite system and forecast weather conditions country wide. Vulnerable communities are given prior information on dam spillage of local, national and international origin as early warning. The media play an important role in the dissemination of early warning information country wide.

**Context & Constraints:**

The early warning systems are not widespread. For example, rivers in flood prone areas are not gauged. Many people rarely listen to the broadcast of weather warnings, especially in the poor and vulnerable communities.

There are no seismographs in the mining and quarrying communities. Only three (3) analogue seismographs are currently functioning in the entire country.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

**Description:**

Ghana is a member of the African Union (AU) and the sub-regional grouping, the Economic Community of West African States (ECOWAS) and abides by the AU and ECOWAS conventions on disaster risk reduction, especially in the area of trans-boundary collaboration.

Ghana shares information with neighbouring countries such as Burkina Faso, Cote d'ivoire on hazards such as Cerebro-spinal meningitis, Anthrax, locust invasion, algal bloom and flooding. Specifically Ghana receives early warning from the operators of the Bagre Dam in Burkina Faso before spilling. Ghana also exchanges information on other Pest and Insect infestation hazards such as African Swine Fever, Avian Influenza with neighbouring countries.

**Context & Constraints:**

Elaborate policy agreements do not exist between Ghana and the neighbouring countries. Language is a serious problem for collaboration in view of the fact that Ghana, an anglophone country is surrounded by francophone countries. Some times there are delays in early warning information getting to actual users.

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**Guinea-Bissau** (in French)

## Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

### Level of Progress achieved:

1 - Minor progress with few signs of forward action in plans or policy

### Is there a national multi-hazard risk assessment available to inform planning and development decisions?

No

### Means of Verification:

\* No: Multi-hazard risk assessment

\* 0 % of schools and hospitals assessed

\* 0 schools not safe from disasters (specify absolute number)

\* No: Gender disaggregated vulnerability and capacity assessments

\* No: Agreed national standards for multi hazard risk assessments

### Description:

Les contraintes sont institutionnelles. il faut une volonté politique pour la mise en place du service nationale de la protection civile et la plate nationale de reduction des risques de catastrophes.

### Context & Constraints:

Absence de département est le plus grand défi pour les RCC

1. L'institutionnalisation d'une entité dont la tâche principale est de veiller à l'harmonisation des palinificações sectorielles sur la RRC et la coordination des interventions.

2. Renforcement des capacités institutionnelles dans le domaine de la RRC aux niveaux national et la régionalisation

## Priority 2: Core indicator 2

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### Level of Progress achieved:

1 - Minor progress with few signs of forward action in plans or policy

### Are disaster losses systematically reported, monitored and analysed?

Yes

### Means of Verification:

\* No: Disaster loss database

\* No: Reports generated and used in planning

**Description:**

Nível de progressos atingidos :

Houve melhoramento no serviço de sistema de colecta de dados, arquivo e divulgação atempada através de boletins informativos do Serviço Nacional de Meteorologia divulgadas através dos radios também houve a reabilitação das infra-estruturas do Serviço Nacional de Meteorologia nas regiões ( Bolama e Bafata).

Questões Chaves e meios de verificação :

Existência de um sistema de vigilância epidemiológica operacional a todos os níveis do sistema de saúde, também no Serviço Nacional de Meteorologia que regista e analisa as informações de forma sistematicamente.

Existência de um Sistema de Alerta Precoce para a Segurança Alimentar e sistema nacional vigilância epidemiológica para zonas

**Context & Constraints:**

Desafios

Representatividade dos dados do Serviço Nacional de Meteorologia

Consernente a Sistema de Informação Sanitaria (SNT) / Vigilância Epidemiológica (VE) a análise e interpretação de dados sobre tudo a nível das regiões é ainda deficiente.

Recomendações :

Reforço de capacidades institucionais em termo de recursos humanos na recolha, análise, tratamento e divulgação de dados e ainda em equipamentos.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

1 - Minor progress with few signs of forward action in plans or policy

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

No

**Means of Verification:**

\* No: Early warnings acted on effectively

\* No: Local level preparedness

\* No: Communication systems and protocols

\* No: Active involvement of media in early warning dissemination

**Description:**

La Guinée Bissau ne dispose pas de Service National de la Protection Civile, ni de plan communautaire d'alerte précoce et ni de réponse aux situations de crise et d'urgence, ni de Stratégie Nationale de Prévention des Catastrophes, et ni de plan d'urgence national multirisques. Les interventions dans ce projet permettront de réduire la vulnérabilité des communautés face aux catastrophes et accroître les capacités d'intervention communautaires et nationales lorsque de telles catastrophes se produisent

**Context & Constraints:**

Il faut la mise en place d'un cadre institutionnel de RRC, pour la mise en oeuvre des activités.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

1 - Minor progress with few signs of forward action in plans or policy

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

**Description:**

Nível de Progresso atingidos

Mesmo que a Guiné-Bissau é membro da CEDAO, CILS, OMVG, OOAS, ainda não aderiu a outras redes de sistema Exemplo : PLATAFORMA REGIONAL DE GESTÃO DE RISCOS DE CATASTROFES :

Questões chaves atingidos :

Plano de acção transfronteiriça anível da agricultura e veterinária e no quadro de regulamento sanitária que estão identificadas os pontos de entrada no quadro da implementação do regulamento sanitário internacional (RSI)

**Context & Constraints:**

Pays en voie de développement et membre des PIED, la Guinée Bissau fait partie du groupe moins avancés (PMA), avec un PIB par habitant estimé en 2008 à 590 \$USD et un taux de croissance réel du PIB de 3,2%. D'après le Rapport Mondial sur le Développement Humain Durable des Nations Unies (2009), le pays occupe le 173<sup>ème</sup> rang sur un total 182 pays, avec un Indice de Développement Humain (IHD) de 0,396.

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**Kenya** (in English)

## Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

### Level of Progress achieved:

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### Is there a national multi-hazard risk assessment available to inform planning and development decisions?

No

### Means of Verification:

- \* No: Multi-hazard risk assessment
- \* 70 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

### Description:

National and local risk assessments based on hazard data and vulnerability information are available and include risk assessment for key sectors but these are disaggregated and scattered in different sectors and institutions, these institutions need to be coordinated to share their information with other stakeholders. Currently the government has received an assistance from UNDP, has consulted Kenyatta university to come up with a national risk assessment and vulnerability maps for Kenya.

### Context & Constraints:

The consultancy work is expected to take about 3 months and is expected to be ready by March 2011. Emerging issues have also to be taken into consideration.

## Priority 2: Core indicator 2

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### Level of Progress achieved:

5 - Comprehensive achievement with sustained commitment and capacities at all levels

### Are disaster losses systematically reported, monitored and analysed?

Yes

### Means of Verification:

- \* Yes: Disaster loss database
- \* Yes: Reports generated and used in planning

**Description:**

Systems are in place to monitor, especially after the establishment of the National Disaster Operation Centre to monitor and disseminate information on emergencies in the country, The Kenya Red Cross is also doing a wonderful job in this front with their network of ever-present volunteers to disseminate data on key hazards and vulnerability.

**Context & Constraints:**

The key constraint here is accessibility to some of the remotest parts of the country due to bad terrain and poor road network.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

5 - Comprehensive achievement with sustained commitment and capacities at all levels

**Do risk-prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

**Description:**

On this front Kenya has done exceptionally well, meteorological department is very active and provides timely information, we have also vibrant media that informs on early warnings to emergencies and at the community level administrative structures carries out awareness-raising campaigns and warnings. The government has also started a programme on community radios on local dialect especially for flood-prone areas of western part of Kenya.

**Context & Constraints:**

Even after receiving warnings especially on impending floods, the people of western Kenya are so attached to their ancestral land and don't willingly agree to move to higher grounds.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans-boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

5 - Comprehensive achievement with sustained commitment and capacities at all levels

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

**Description:**

The government is working very closely with Africa Union at the regional and Igad at the sub-regional level in addressing disaster risk reduction and trans boundary issues. Issues of small arms and light weapons that causes instability are being addressed by AU, The conflicts brought about by crossborder rustling, pasture and grazing is being addressed by Igad. There are also efforts being done by Philanthropists like the Tecla Lorupe Foundation that organizes peace races and are preaching peaceful coexistence with neighbours, they also build schools and are changing the communities way of life in those regions.

**Context & Constraints:**

These are delicate issues and efforts are required for sustainable implementation and development.

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## Lesotho (in English)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

No

**Means of Verification:**

- \* No: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

The only assessments that are undertaken are the National Vulnerability Assessments, the Risk Assessments at the village level and the Community Owned Vulnerability Assessment and Capacity Analysis at the village level. Lack of expertise and financial resources coupled with inadequate human resources pose as constraints for the core indicator.

**Context & Constraints:**

Lack of expertise, financial and Human resources.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Are disaster losses systematically reported, monitored and analysed?**

No

**Means of Verification:**

\* No: Disaster loss database

\* No: Reports generated and used in planning

**Description:**

The Disaster Management Authority has no database because there is no equipment that can facilitate a database.

Lack of expertise is another constraint.

Lack of understanding and ownership by responsible ministries such as education, health pose a constraint.

**Context & Constraints:**

Lack of expertise, financial resource and equipment are some of the constraints.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

\* Yes: Early warnings acted on effectively

\* No: Local level preparedness

\* No: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

**Description:**

Information of impending some hazards such as strong winds is not available even from the Meteorological services as they are predominantly localised, develop and dissipate quickly.

**Context & Constraints:**

No information for some hazards such as strong winds.

No means of communication for some communities at risk.

Inadequate resources to finance and disseminate early warning information.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

1 - Minor progress with few signs of forward action in plans or policy

**Does your country participate in regional or sub-regional DRR programmes or projects?**

No

**Means of Verification:**

\* No: Programmes and projects addressing trans-boundary issues

\* Yes: Regional and sub-regional strategies and frameworks

\* No: Regional or sub-regional monitoring and reporting mechanisms

\* No: Action plans addressing trans-boundary issues

**Description:**

The Southern African Development Community (SADC) has a very weak disaster risk Management Structure that is still at its infant stage.

It has never therefore facilitated cooperation in DRR within the regions.

The regional strategy was developed a long time ago but it was never implemented. It is now under review and the SADC is in the process of recruiting people into the DRR Department at the regional level.

**Context & Constraints:**

Because of the ineffective office at the regional level, there has been very little trans boundary and regional DRR activities.

## Madagascar (in French)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

#### Level of Progress achieved:

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

#### Is there a national multi-hazard risk assessment available to inform planning and development decisions?

Yes

#### Means of Verification:

- \* Yes: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* Yes: Agreed national standards for multi hazard risk assessments

#### Description:

En ce moment, il n'existe que des études assez disparates et non mises à jour pour les risques. Actuellement, l'Etat, par l'intermédiaire de la CPGU, du BNGRC et du service de la Météorologie malagasy, travaille avec l'appui du GFDRR pour l'élaboration de l'Atlas des risques. Faute de budget suffisant, cet atlas qui aurait dû être établi au niveau national a été limité à quelques régions prioritaires. Sur les 22 régions de Madagascar, 4 sont programmées pour bénéficier de l'étude.

Il est à noter cependant que des efforts sont ressentis au niveau de la mise à jour des baselines. Des cartes et des données monographiques allant jusqu'au plus bas niveau administratif : « fokontany » ont été élaborées par l'institution nationale en charge de la statistique avec l'appui de l'UNFPA.

Des recherches de financement sont en cours actuellement pour finaliser l'étude sur les risques au niveau des autres régions non priorisées.

#### Context & Constraints:

La difficulté réside avant tout dans la faible capacité financière. La volonté de chaque partie prenante dans l'évaluation des risques existe mais il leur est difficile de surmonter cette difficulté financière. De plus les compétences font défaut, et il nous faut des expertises extérieures pour pouvoir mettre en place un système évolutif capable de stocker, de sauvegarder les données ainsi que de les analyser suivant des critères bien définis et qui suit les normes internationales en la matière. Ces analyses devraient être accessibles dans le temps et dans l'espace à partir de technologie adaptée.

Cette situation repose sur le fait qu'en période de crise, il faut des données fiables et à temps pour prendre des décisions justes et efficaces pour atténuer les impacts des aléas.

Les défis qu'il faut surmonter sont (par ordre de priorités) :

- Des renforcements de capacité en matière d'analyse de risques multi-aléas ;
- Des renforcements de capacité en matière de base de données et d'analyse de données, et de la diffusion des résultats d'étude (internet, webmapping, Système d'information géographique, modélisation...)
- Des appuis financiers et matériels notamment dans le recrutement d'experts internationaux pour le renforcement de capacité et dans l'achat d'éventuel serveur.

## **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### **Are disaster losses systematically reported, monitored and analysed?**

Yes

### **Means of Verification:**

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

### **Description:**

Le BNGRC est l'entité en charge du stockage des données liées aux dégâts post-catastrophes. Ces données sont analysées et diffusées au niveau de tous les intervenants (Gouvernement, Equipe humanitaire et autres) pour qu'il y ait facilité dans la prise de décision.

Actuellement, un projet est en cours dans la mise en place d'un outil d'aide à la décision. Ce projet consiste à la mise à disposition des décideurs et des acteurs de tous les paramètres nécessaires pour une prise de décision rapide. Ces paramètres sont le nombre des victimes, le pré positionnement en vivres et non vivres, les historiques des aléas, les acteurs en place et la monographie.

Les bases de données sur les dégâts seront disponibles avant la fin de cette année sur le siteweb. Cette base de données concerne les dégâts multi-aléas de 2000 à 2010.

Il faut noter par ailleurs que l'élaboration des plans de contingence sur le cyclone découle de l'analyse des chiffres sur les dégâts.

### **Context & Constraints:**

Les données reçues et centralisées au BNGRC sont incomplètes. En effet, les données sur les divers aléas touchant Madagascar sont détenues par diverses entités (par exemple : les données sur l'invasion acridienne sont du ressort du Comité National Antiacridien ; celles sur la malnutrition et l'insécurité alimentaire en général sont détenues par l'Office National de Nutrition). En d'autres termes, fournir une base de données multi-aléas à Madagascar est encore un défi du fait que les données sont très disparates et « sectorialisées ».

Recommandations : renforcer la coordination entre ces différentes entités en charge d'un ou plusieurs aléas notamment en matière d'échange de données ; assurer la centralisation au niveau du BNGRC de toutes les données relatives aux différents aléas et leurs conséquences.

## Priority 2: Core indicator 3

*Early warning systems are in place for all major hazards, with outreach to communities.*

### Level of Progress achieved:

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### Do risk prone communities receive timely and understandable warnings of impending hazard events?

Yes

### Means of Verification:

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

### Description:

Par le relais des partenaires intervenants, les systèmes d'alerte précoce sont développés au niveau local. De même, les populations locales des zones les plus à risque reçoivent régulièrement des formations, des sensibilisations en matière de GRC.

Le cluster « Education » est également très actif dans la formation et la sensibilisation des enseignants et élèves des circonscriptions scolaires vulnérables.

Le Service de la Météorologie Malagasy a également procédé à l'évaluation de risques et de cartographie pour la région de Sofia (très vulnérable aux inondations). Les cas des autres régions sont en cours de préparation dans le cadre de GRIP et avec le PNUD. De plus, les termes de référence concernant l'amélioration des systèmes d'information météorologiques axés sur les populations sont en cours d'élaboration avec l'OMM. Du point de vue technologique, le Service de la Météorologie Malagasy a renforcé son système satellitale pour la réception et la diffusion des informations météorologiques. D'autre part, une station marégraphique est installée dans le Port de Toamasina.

Par ailleurs, cette année, le BNGRC en partenariat avec un opérateur téléphonique local alerte directement les populations concernées par une catastrophe imminente à travers l'envoi massif des sms. Ce partenariat permet également aux usagers d'appeler directement à travers un numéro vert soit le Service de la Météorologie Malagasy soit le BNGRC pour avoir de plus amples informations.

### Context & Constraints:

Pour le Service de la Météorologie Malagasy, l'insuffisance des réseaux d'observation et la faiblesse des investissements constituent des contraintes pour l'amélioration des systèmes d'information et d'alerte précoce.

D'un autre côté, pour mieux cibler les populations, il est requis davantage de coordination entre les différents intervenants ainsi que de partenariat avec le secteur privé.

## Priority 2: Core indicator 4

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues
- \* No: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

**Description:**

La survenance de la crise politique a gravement handicapé et mis en veilleuse les relations de Madagascar avec les institutions extérieures même dans le domaine de la GRC. Quoique, en matière de surveillance et d'alerte aux tsunamis, l'Institut de Géophysique d'Antananarivo (IOGA) travaille avec le PTWC (Centre d'alerte aux tsunamis dans le Pacifique) et le JMA (Japan Meteorological Agency).

De même, le Service de la Météorologie Malagasy travaille en étroite collaboration avec la SADC pour la prévision météorologique sur une période trimestrielle.

**Context & Constraints:**

Les plans d'actions des programmes d'envergure transfrontalière ne sont pas vulgarisés au niveau des secteurs concernés. On note aussi une insuffisance d'expertise en matière de changement climatique et de pollution marine par exemple.

Recommandations : favoriser les échanges notamment avec les pays latino-américains (en matière de changement climatique), le Japon (en matière de tsunamis et séisme). Par ailleurs, il faut considérer les programmes d'envergure transfrontalière sur la GRC comme un axe transversal.

## **Malawi** (in English)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

No

**Means of Verification:**

- \* No: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

Malawi is developing a national geo-spatial database. Various actors are currently working towards a system whereby they will be contributing information for hazard and vulnerability analysis and risk assessments.

**Context & Constraints:**

Currently the country does not have a multi-hazard risk assessment tool and capacity. It conducts vulnerability assessment with regards to food security via a specialised commission (MVAC). There is a lot of data on hazards and vulnerability scattered within different institutions and organizations which is not easily accessible. Metadata and inventory list need to be standardised, harmonized and centralised.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

- \* Yes: Disaster loss database
- \* Yes: Reports generated and used in planning

**Description:**

All disaster reports are compiled into the national disaster profile which is shared with various stakeholders. The information is disseminated to various actors through regular meetings, workshops and print and electronic media.

**Context & Constraints:**

A number of studies have been done on key hazards and vulnerabilities by different actors on some key hazards. However, there are various similar databases that need to be linked to enable a comprehensive analysis of vulnerabilities and risk analysis

### **Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

#### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

#### **Do risk prone communities receive timely and understandable warnings of impending hazard events?**

No

#### **Means of Verification:**

- \* No: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* No: Communication systems and protocols
- \* No: Active involvement of media in early warning dissemination

#### **Description:**

Some comprehensive early warning systems have been established in the country on major hazards like floods and droughts (prolonged dry spells). These include periodical weather forecasts and food security assessments and outlooks by Fewsnet and MVAC. Some projects are also implementing community based early warning systems on floods.

#### **Context & Constraints:**

While early warning systems are in place, outreach to communities need to be strengthened and more effective with adequate lead time and understandable by the communities. The early warning systems need to be strengthened through investment in improved equipment, human and financial resources and further awareness raising. Effective information and communication systems also need to be standardised, developed and/or enhanced.

### **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

#### **Level of Progress achieved:**

1 - Minor progress with few signs of forward action in plans or policy

#### **Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

#### **Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms

\* No: Action plans addressing trans-boundary issues

**Description:**

In various hazard prone areas risk assessments have been conducted through the community based projects that are being implemented in the respective areas. Recently, some regional and sub-regional initiatives on regional and transboundary risks have been developed and are being implemented. These include; the Shire-Zambezi River Basin Project; and the Songwe River Basin Project.

**Context & Constraints:**

Participatory risk and vulnerability assessments are part of the various DRR project implementation process. However, these assessments have not been carried out on a larger scale (e.g. whole district) and are not linked nor well coordinated to form a standard and comprehensive national hazard and vulnerability database. Malawi does receive a lot of water through rivers crossing boundaries.

**Mauritius** (in English)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

-- Nothing reported within this timeframe. --

**Means of Verification:**

- \* No: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

Impacts, distribution and frequencies of tropical cyclones are well documented and fairly well understood.

Vulnerable areas prone to flash flood have also been identified, though the physical characteristics of land are changing because of change in land use. Areas prone to landslide have also been identified.

Lately, a coastal inundation map has been produced by the Mauritius Oceanographic Institute. The map identifies and states the degree of vulnerability of various coastal areas in the event of a potential tsunami. Under the Clinton initiative for tsunami recovery, equipment have been purchased and distributed, ( tide gauges, loud speakers, sirens, special radios for fishermen, etc)

NGO's are participating in tsunami awareness campaign.

The Climate Change Plan of Action lists a series of adaptation and mitigation measures that need to be considered with regard to climate change.

**Context & Constraints:**

A complete assessment still need to be carried out to have a complete picture of the impacts regarding some hazards like tsunami, or even flood and landslide. Cross-sectoral linkages, namely economic, social and environmental have still to be quantitatively assessed

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

\* No: Disaster loss database

\* No: Reports generated and used in planning

**Description:**

Data exists mainly on tropical cyclones and to a certain extent on flash flood in terms of rainfall from a network of over 200 stations. Landslide and tsunami are hazards that have been listed only after 2004.

Quantitative data on the extent of damages caused by any hazard have not been systematically archived in a central data bank. However some data, for example in the agricultural sector exist at various institution level.

**Context & Constraints:**

There is a need to have a central data bank on all hazards likely to affect the country. Data sharing protocols and mechanisms have still to be developed. There is also a lack of geo-spatial data.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

**Description:**

The Mauritius Meteorological Services maintains a 24/7 watch for all hazards likely to affect Mauritius. The Meteorological Services has a well-understood cyclone warning system together with an ongoing outreach (public awareness) and education program. A torrential rain warning system exists since the mid eighties. Some further fine-tuning may be needed here. A landslide warning system is already operational since last year.

A tsunami alert system has been developed and is already operational. Regular talks are organized at school, community centres, village halls and municipal hall for the students and general public. Talk are also organized on the local radio and television.

**Context & Constraints:**

The efficacy of early warning systems for tropical cyclones is generally well established. Further outreach and public awareness for torrential rains, landslide and tsunami warning need to be carried out. An outreach programme, continuous education and public awareness started two years ago is, and will be kept ongoing feature.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues
- \* No: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

**Description:**

Mauritius is a member of the RA I Tropical Cyclone Committee. The Regional Specialized Meteorological Centre, (RSMC), is Meteo France, Reunion and Mauritius is the sub-regional centre. The Tropical Cyclone

Committee meets every two years around the month of October and there is good cooperation among member countries in sharing data and information.  
There is also good working link with other WMO member countries, the Pacific Tsunami Warning Centre, (PTWC) and the Japan Meteorological Agency, (JMA), on tsunami warnings, United States Geological Survey, (USGS), on earthquake warning.

**Context & Constraints:**

No significant constraint has been identified.

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## Morocco (in French)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

No

**Means of Verification:**

- \* No: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

L'absence d'une plateforme multirisque n'a pas empêché le Maroc de prendre des initiatives pour mettre en place des systèmes de surveillance notamment par l'installation des réseaux, dans ce cadre, le Maroc a mis en place de nombreux réseaux et observatoires pour la surveillance des phénomènes susceptibles de générer des catastrophes naturelles :

- le réseau météorologique relevant de la Direction de la Météorologie Nationale et qui a connu un développement exceptionnel notamment par le développement de compétences propres lui permettant d'être au niveau des normes internationales en matières de gestion et en matière de prévision météorologiques et climatiques,
- Le réseau annonces des crues,
- le réseau de marégraphe côtier installés au niveau des ports du Royaume pour suivre la variation du niveau de la mer,
- le réseau sismologique marocain (CEPRIS, Centre mis en place dans le cadre de l'Accord de l'EUR-OPA risques majeurs),
- l'Observatoire national de la secheresse,
- le suivi et l'observation des pollution par le Laboratoire National des Etudes et de la Surveillance de la

Pollution relevant du département de l'Environnement,

- le réseau d'annonce d'invasion acridienne,

le Centre de Télédetection Spatiale qui a connu un développement rapide le positionnant comme acteur incontournable pour toute action stratégique pour la prévention et la gestion des risques,

- La surveillance épidémiologique relevant du Ministère de la Santé qui dispose de mécanismes de surveillance des risques et de cartographie des risques visant la prévention et la lutte contre les maladies contagieuses et épidémiques.

**Context & Constraints:**

Certains observatoires mis en place ne sont pas complètement opérationnels et la masse d'information produite par ces observatoires et réseaux existants reste dispersés.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

\* Yes: Disaster loss database

\* No: Reports generated and used in planning

**Description:**

En cas de catastrophes naturelles, les départements concernés par l'Intervention établissent des rapports relatant le bilan des pertes humaines et matérielles.

Il est à signaler que le Centre de Veille et de Coordination (CVC) installé au niveau du Ministère de l'Intérieur et qui a pour mission le pilotage des processus relatifs à la gestion des situations d'urgence, collecte également toutes les informations relatives aux pertes humaines et matérielles.

Depuis les inondations de 2008 ayant touché certaines régions du Maroc, les services du Ministère de l'Intérieur ont commencé à recenser les pertes engendrées et à tirer les enseignements nécessaires en vue de mieux planifier et se préparer aux éventuelles inondations notamment dans les zones menacées. Des banques de données et des rapports établis au niveau Ministère de l'Intérieur ont commencé à être mis en place. Des applications sont en cours de développement afin de mieux maintenir l'outil statistique.

**Context & Constraints:**

Tous les Départements qui interviennent lors d'une catastrophe à savoir la Protection Civile, la Gendarmerie Royale ... disposent de leurs propres bases de données.

Il est à noter qu'il existe également une insuffisance des moyens techniques et un manque de ressources humaines qualifiées.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

## Do risk prone communities receive timely and understandable warnings of impending hazard events?

Yes

### Means of Verification:

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

### Description:

Dans le cadre du Plan de Prévention du Risque Inondation , un système de prévision et d'alerte de crues a été élaboré.

Un "système météo hydrologique" destiné à optimiser l'alerte précoce et la prévention des inondations et des phénomènes naturels extrêmes est en phase de développement par le Secrétariat d'Etat chargé de l'Eau et de l'Environnement.

Ce système, conçu conjointement avec la Direction de la Météorologie Nationale, vise la réalisation et l'optimisation de l'alerte précoce et des programmes de prévention pour faire face aux inondations et phénomènes naturels extrêmes.

Toutefois, des efforts sont à fournir pour développer et mettre en place des instruments et des outils qui permettent d'alerter précocement les populations. On peut signaler à titre d'exemple, la surveillance sismique assurée par le Laboratoire de Géophysique, le système d'alerte contre les inondations pour la vallée de l'Ourika (région de Marrakech), la surveillance des barrages, l'émission des bulletins météorologiques spéciaux lorsque de fortes perturbations sont prévues, le lancement du projet d'alerte contre les Tsunamis sur la côte atlantique (Casablanca et Rabat), etc..

Il existe également des systèmes pilotes de prévision et d'alerte aux crues du bassin versant de Tansift et d'autres bassins versants bénéficieront du même type de système d'alerte.

Un système de surveillance et d'alerte des invasions acridiennes situé au sein du Centre de Prospection à Ait Melloul.

### Context & Constraints:

Les systèmes d'alertes ne sont pas généralisés et ne couvrent pas tous les aléas naturels, actuellement ce système est axé uniquement sur les risques des inondations.

Aussi, on peut relever une insuffisance des moyens financiers pour mettre en place les systèmes d'alerte généralisés et le déficit en termes de disponibilité et de formation spécialisée des ressources humaines.

### Priority 2: Core indicator 4

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

### Level of Progress achieved:

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

## Does your country participate in regional or sub-regional DRR programmes or projects?

Yes

**Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

**Description:**

Le Maroc est impliqué dans des programmes d'accords régionaux et sous-régionaux dans la zone Méditerranée, la zone Afrique et la zone pays arabes visant la réduction des catastrophes (ISDR), la préparation et la lutte contre la pollution marine accidentelle par hydrocarbures, la lutte contre les incendies de forêts, la préparation face aux séismes, la recherche et le sauvetage en mer.

Pour la lutte anti-acridienne et l'opération Ghait (la lutte contre la sécheresse), le Maroc coordonne ses actions avec les pays voisins.

Dans le cadre de ligue arabe, le Maroc abrite le bureau arabe de la protection civile et des secours qui a parmi ses attributions l'organisation de la protection des catastrophes et le développement de la coopération entre les pays arabes dans le domaine de la prévention des catastrophes.

le Maroc participe également à l'élaboration d'un projet de stratégie pour la gestion des risques de catastrophes et l'impact des changements climatiques dans le monde islamique.

**Context & Constraints:**

Il ya une intense coopération actuelle entre les pays de la région, soit des pays de la région Arabe, du Moyen Orient ou encoue du Sud de l'Europe Occidentale et Méditerranéenne (Accord Eur-Opa risques majeurs), cependant cette coopération doit être renforcée par la réalisation sur le terrain de plusieurs exercices de simulation et d'échange d'information sur les risques de catastrophes.

La coopération régionale doit également couvrir tous les types de catastrophes, mais certaines contraintes entravent ce processus à cause de l'influence de la politique au niveau régionale.

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**Mozambique** (in English)**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

**Means of Verification:**

- \* Yes: Multi-hazard risk assessment
- > Impact of Climate Change in Mozambique (2009) [http://share.maplecroft.com/INGC\\_Report/](http://share.maplecroft.com/INGC_Report/)
- \* 0 % of schools and hospitals assessed

- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* Yes: Agreed national standards for multi hazard risk assessments

**Description:**

Two recent studies mark the current interest on multi- risk assessment on sectors, particularly on economy and human settlements. Floods, cyclones, droughts and sea level rise have been the main focus of these studies:

The 2009 INGC study on Climate change impacts on Disaster Risk shows the probability of future climatic variability both in time and in magnitude (See main Report Attached).

In terms of impacts to sectors, this study highlights that rain excess and deficit will have significant impacts on agriculture production, especially in the southern and central regions. Crop failure due to floods or droughts is expected to increase in these regions. Salt water intrusion is expected to expand inland up to 28 km on the Zambezi. Salt intrusion is also expected on the Limpopo, Incomati, Buzi, Ligonha River basins, with the consequent reduction of fresh water for irrigation and human supply. The Northern region is expected to remain stable.

Additionally, economic activity, especially, on the poor livelihoods of the coast, tourism and human settlements are expected to be affected by intense cyclones activity. Associated with cyclones, sea level rise and storm surges are expected to have adverse impacts on infrastructures, particularly, ports, at the cities of Maputo and Beira. But sea level rise impacts will also affect the city of Xai-Xai, at the mouth of the Limpopo River.

These findings were also confirmed by the World Bank et al.(2010) study on the economics of adaptation for Mozambique. Out of agriculture and human settlements, this study expanded the risk assessment to roads and hydropower and concluded that by 2040, losses in GDP will reach 4.5-9.8% in agriculture, over 1.4% electricity reduction, substantial losses in the transport sector, 916 000 people displaced at the coastal areas were annual damages are estimated to reach \$103 million.

Mozambique was selected as one of the pilot countries for the implementation of GRIP activities in Africa. Global risk identification activities have started in 2008. To date a Country Situation Analysis report has been produced (See attachment), aimed to identify studies conducted in the field of risk assessment, and key players in the various national institutions. The findings will feed into the multi-hazard National Risk Assessment to be conducted soon.

Under GRIP program, a seismic risk assessment for urban areas has been started for the city of Maputo (the capital). The methodology will be expanded to other cities where seismic risk is greater and will be used as an assessment tool for other risks in major cities.

**Context & Constraints:**

So far, less interest has been paid to assessing the impacts of disasters and climate change risks on schools and hospitals, so that specific measures are put in place to retrofit or relocate them to safer locations.

Although the number of schools and hospitals is well known, the country has not conducted a specific assessment to identify and quantify the hospitals and school units at risk. As a result, although there is national capacity to undertake this assessment, the number of unsafe schools and hospitals is not currently known.

District risk mapping through innovative community assessment approach integrated with in depth district food security and nutrition vulnerability information has just initiated. These will provide key information, disaggregated for district planning and decision making on priority actions aligned with decentralization

process.

Other constraints are those related to the technical aspects associated with the use of Global Circulation Models.

For instance, for the 2009 INGC study:

- Not all the seven global circulation models used, have shown similar results
- The results were highly affected by the modeling uncertainties such as: spatial resolution of the data namely-topographic data (the DEM 1km of spatial resolutions); the physical data like soils characteristics where at 1:1 000 000 scale
- Field data for modeling calibration: the satellite rainfall data used for downscaling of global future rainfall where only available for 10 year (1998-2008) with a low spatial resolution (8km) which means the need of improvements by using field raingauged stations.
- The coverage of raingauged network in Mozambique is poor which makes the models results difficulty to calibrate.
- The maps are not validated yet as additional field survey is required.

## **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### **Are disaster losses systematically reported, monitored and analysed?**

Yes

### **Means of Verification:**

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

### **Description:**

With the support of UNDP, and under the Global Risk Identification Program (GRIP), Mozambique has concluded the collection of information on disaster losses across the country covering the last 30 years. As output, a disaster inventory in the form of a web database has been created and the process to collect day-to-day data on disasters losses will start soon.

Preliminary results of the inventory show that although floods and drought have been the most frequent disasters, epidemics have caused the highest death toll over the last 30 years in Mozambique. This is a typical epidemiological profile of a country with high levels of poverty and weak public sector systems, where access to health facilities, adequate health care and access to drinking water remains low, with large discrepancies between rural, urban and peri-urban households. Additionally, undernutrition remains one of the primary underlying cause of deaths in Mozambique, especially among children below 5 years of age. Among hazards, although less frequent, cyclones have been the most destructive for houses and have accounted for more than 50% of total sustained damages.

However, before the creation of this web database, Government reports have traditionally been used as the source of information of disaster losses. In the recent times, the 2000, 2001, 2007 and 2008 disasters appear as the best examples. With the exception of the 2008 disaster report, besides the physical damages (human and infrastructures), the three reports included the estimates of the financial impacts. The 2000 and 2001 disaster reports were used as the source of information for International Appeal and post-disaster reconstruction program. The 2007 and 2008 reports were used by to guide the post-reconstruction program (resettlement program) underway on the Zambezi River (Central region) and Save River (Southern region).

**Context & Constraints:**

Two facts emerge as constraints to disaster loss data in Mozambique. First, there are limitations associated with the nature of information on the database. For instance, the web database is relatively limited in terms of time scale not allowing one to go back beyond the year 1979. However, for a country like Mozambique who is regularly affected by extreme disaster, more extensive databases are required for accurate disaster impact analyses, also integrating different indicators.

The second fact is associated with the validation of contentious data, particularly those related to deaths due to floods and droughts. Very often, indirect causes (attacks by crocodiles, boat accident or risky crossings) are always attributed to floods when occurring during the rainy season, although these events can also occur during dry season. Similarly, many local leaders tend to related with drought all the deaths of stunted children, or abandoned elderly or disabled that occur in their areas during drought years. But the officially accepted cause of death reported is that reported by the Health Authorities. These kind of disputes were frequent during 2005 when 800 000 were reported affected by droughts across the country, and many community leaders and local authorities claimed deaths associated with hunger, against a vehement denial of Government officials. More accurate, timely, and reliable information at all levels and appropriate information dissemination to clarify how and who should be responsible to provide public information etc. Communication systems should also be improved from field to central level and vice-versa.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

**Description:**

Four early warnings systems are in place in the country: floods, cyclones, food insecurity and earthquakes. The last system is under expansion and over the last 3 years, more seismological stations and an online and on time data collection systems has been set connecting Maputo (central) and the network stations. The other three systems have been continuously built to insure more territorial coverage, especially, for floods, which now includes more rivers and the city of Beira.

Precise information is given: the type of hazards, the likely areas to be affected, and the time expected for the hazard to strike the given locations, the likely damages. Local governments and local communities are

informed about the type of measures, including safe protection, to enhance preparedness for the impending hazards.

Procedures and measures to be undertaken in advance:

- Local governments and communities are active members and direct beneficiaries of the early warning system, as they are the special target of early warnings on impending hazards. Provincial and district Governments and Local Committees for Risk Management are the bodies in place at local level to act when official warnings are released by the National Institute of Disaster Management (INGC).

On the other hand, media play a critical role in disseminating continuous information and press releases from specialized Government agencies (INAM, National Directorate for Waters, INGC, the President of the Republic, the Council of Ministers) on the evolution of the hazards. For intra-government communication, fax and telephone remain critical for rapid warnings.

All means of communication have been employed according to the conditions: television, radio, newspapers and Internet and direct communication. However, due to its territorial coverage and high availability of radio set at community level, radio and direct communication are the ways the most employed to disseminate information to the local communities.

#### **Context & Constraints:**

Accurate flood early warning system is heavily dependent on hydrological and meteorological gauge stations to provide timely data (localized) on river flow levels and rainfall. So far, the limited territorial coverage of meteorological stations is the major challenge for rapid flood risk assessment for small river basins.

In addition, lack of expertise of Regional Administration for Waters (ARA's), and limited financial capacity for the rapid expansion of territorial coverage of hydrological stations over the large river basins.

Food security and nutritional information systems, that includes crop EW monitoring, market and prices and nutrition are mostly undertaken at national level. Provincial and district capacity to monitor and timely report with reliable and accurate food security and nutrition information is a major handicap in the whole system, due to lack of knowledge, skills and appropriate tools and methodologies of the existing personnel.

#### **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

#### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

#### **Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

#### **Means of Verification:**

\* Yes: Programmes and projects addressing trans-boundary issues

> Tripartite Permanent Technical Committee (TPTC) between Mozambique, South Africa and Swaziland (2010) [http://www.preventionweb.net/files/16411\\_primaoperatingobjectives.pdf](http://www.preventionweb.net/files/16411_primaoperatingobjectives.pdf) [PDF ]

\* Yes: Regional and sub-regional strategies and frameworks

\* Yes: Regional or sub-regional monitoring and reporting mechanisms

\* Yes: Action plans addressing trans-boundary issues

> Planning prima operational rules (2010)

[http://www.preventionweb.net/files/16411\\_planningprimaoperatingrulesdss2.pptx](http://www.preventionweb.net/files/16411_planningprimaoperatingrulesdss2.pptx) [PPTX ]

### **Description:**

Due to its location at the downstream end of 13 international river basins which are annually concern of the country, Mozambique is the most interested party in the regional dialogue to ensure equitable management of transboundary water resources and reduce the related risks. In this regard, 6 rivers basins put the major pressures to the country: the Zambezi, Pungue, Save, Limpopo, Incomati and Maputo rivers due to the direct impacts of water scarcity or excess on the local economic activities and human settlements in Mozambique.

Over the last years, through the project named PRIMA, Mozambique, South Africa and Swaziland have enhanced regional cooperation towards the management of water resources of the Incomati-Maputo rivers systems, under the Inco-Maputo Agreement.

In light of this agreement, on behalf of the Tripartite Permanent Technical Committee (TPTC) between those countries, the Mozambican National Directorate for Water has been granted funds from the Government of the Netherlands for the implementation of the Progressive Realization of the IncoMaputo Agreement (PRIMA) Programme. Nine (9) studies, of which, two on risk management at regional perspective are currently ongoing.

On other hand, tripartite meetings have been held between Mozambique, Zambia and Zimbabwe with the aim at improving the inter-government coordination on water management on the Zambezi River, principally during the rainy season. Therefore, as part of a regional strategy for flood risk management, controlled water discharges from the Caribe hydropower between Zambia and Zimbabwe to the Cahora Bassa dam in Mozambique, has helped to reduce the impacts of floods on downstream locations in Mozambique.

To avoid environmental risks associated to fluvial navigation, Mozambique and Malawi technical teams have been working together to find appropriate solutions for navigation of the Shire and Lower Zambezi Rivers systems connecting Malawi and Mozambique to the Indian Ocean.

### **Context & Constraints:**

The main constraints to the implementation of regional projects with regard to PRIMA are:

- The geographical location of the Inco-Maputo rivers system on three countries remains a major challenge to setting up integrated operating objectives
- The existence of several management units and institutional structures in each country
- The difficulties to implement a multi-tiered approach which optimizes the local water resources needs and usages without compromising the river system equilibrium.
- Lack of financial resources to ensure the sustainability of PRIMA secretariat.

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## **Nigeria** (in English)

### **Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

## Is there a national multi-hazard risk assessment available to inform planning and development decisions?

Yes

### Means of Verification:

\* Yes: Multi-hazard risk assessment

> Vulnerability and Capacity Analysis Document for Nigeria (2009)

[http://www.preventionweb.net/files/14632\\_vcadocumentreviewed.doc](http://www.preventionweb.net/files/14632_vcadocumentreviewed.doc) [DOC ]

\* 0 % of schools and hospitals assessed

\* 0 schools not safe from disasters (specify absolute number)

\* Yes: Gender disaggregated vulnerability and capacity assessments

\* Yes: Agreed national standards for multi hazard risk assessments

### Description:

A multi-stakeholders Implementation Committee for Vulnerability and Capacity Analysis was established. Data for 7 States have been collected and analysis will be completed before the end of 2010. Baseline studies for six (6) States in Nigeria were also completed.

### Context & Constraints:

The vulnerability and capacity analysis (VCA) was conducted in only 21 out of the entire 774 Local Government areas in Nigeria. Budget constraints has limited the implementation in all the local governments in Nigeria.

## Priority 2: Core indicator 2

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### Level of Progress achieved:

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

## Are disaster losses systematically reported, monitored and analysed?

Yes

### Means of Verification:

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

### Description:

Apart from the implementation of the VCA, the Nigeria Meteorological Agency continues to monitor weather and climate related hazards. Equipment for telemetric measure of seismic activities and lemmic eruption at Lake Nyos have been installed.

Flood early warning systems have been established by the Ministry of Environment.

Drought forecast for the Sahel in 2010 informed the decision of the Ministry of Agriculture to expand its capacity for the National Grain Reserve.

**Context & Constraints:**

The level and scope of Monitoring need to be expanded.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

**Description:**

Early Warnings are systematically implemented by calling meeting of stakeholders review, monitor and implement. The media is always well represented and dissemination of information wide spread. The NEMA Zonal Offices and also well briefed to disseminate the warnings.

There is a Multi-disciplinary Epidemic Early Warning System as well as Flood Early Warning System. Several media are used as means of communication and in several languages.

**Context & Constraints:**

More hazards early warning systems are needed.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
  - > West Africa Regional Study on Transnational Flood Impacts and Preparedness Mechanisms (2010) [http://www.preventionweb.net/files/14632\\_ecowaspostfloodstudyfinalenglish.doc](http://www.preventionweb.net/files/14632_ecowaspostfloodstudyfinalenglish.doc) [DOC ]
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

**Description:**

Nigeria is participating in Regional DRR programmes coordinated by ECOWAS. Nigeria participated in Flood Trans-boundary study expert meetings and development of DRR Action Plans for the West African countries.

DRR Frameworks and strategies for West African region had also been developed and approved.

**Context & Constraints:**

There is the need for greater involvement of the regional commission for trans-boundary implementation of DRR programmes.

**Senegal** (in French)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

**Means of Verification:**

- \* No: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

La plateforme multisectorielle existe par décret n° 2008-211 du 04 mars 2008. Néanmoins sa fonctionnalité n'est pas effective. ce qui rend difficile de renseigner les indicateurs y relatifs.

**Context & Constraints:**

Présentement, la DPC (Direction de la Protection civile) envisage de redynamiser et d'étendre les réseaux de Réduction des Risques de Catastrophes (RRC) qui sont des structures devant permettre de rendre fonctionnelle la plateforme.

Le Sénégal, dans la formulation du Document de Politique Economique et social (DPES 2011-2015) compte inscrire la RRC dans les programmes et projets nationaux.

Le document est en cours d'élaboration

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

\* No: Disaster loss database

\* Yes: Reports generated and used in planning

**Description:**

En 2009, l'Etat du Sénégal a commandité une étude portant sur l'évaluation des pertes, dommages et besoins post inondation (PDNA) de 2009 à Dakar la capitale et à l'intérieur du pays.

**Context & Constraints:**

Les initiatives prises dans les années précédentes n'avaient pas permis de juguler les problèmes. Les inondations sont devenues un fléau au Sénégal. et elles risquent d'être exacerbées par les changements climatiques.

Les moyens financiers et la sensibilisation des populations restent les difficultés majeures.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

\* Yes: Early warnings acted on effectively

\* No: Local level preparedness

\* No: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

**Description:**

Des systèmes d'alerte précoces sectoriels existent. on peut citer le Système d'alerte de l' Agence nationale de la météo du Sénégal en ce qui concerne les manifestations atmosphériques et ses conséquences sur l'activité nationale.

Il y a également le système d'alerte précoce de la sécurité marine, le système d'alerte précoce de la sécurité alimentaire etc.

**Context & Constraints:**

Aujourd'hui, il reste qu'à fédérer ces systèmes d'alerte pour mettre en place un système d'alerte précoce national. La plate forme multisectorielle devrait faciliter ce processus.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

\* No: Programmes and projects addressing trans-boundary issues

\* Yes: Regional and sub-regional strategies and frameworks

\* No: Regional or sub-regional monitoring and reporting mechanisms

\* Yes: Action plans addressing trans-boundary issues

**Description:**

La Communauté des Etats de l'Afrique de l'Ouest ( CEDEAO) compte mettre en place une politique sous régionale de RRC dans le contexte de changements climatiques. A cet effet, elle a organisé dans le mois de juin un atelier de sensibilisation des Etats membres sur l'intégration de la RRC et du changement climatique dans les politiques de développement.

**Context & Constraints:**

Cependant, les capacités nationales des Etats membres sont toujours très faibles et la CEDEAO n'est pas encore parvenue à renforcer les plates formes nationales des Etats membres

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**Sierra Leone** (in English)

## Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

### Level of Progress achieved:

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### Is there a national multi-hazard risk assessment available to inform planning and development decisions?

Yes

### Means of Verification:

\* No: Multi-hazard risk assessment

\* 0 % of schools and hospitals assessed

\* 0 schools not safe from disasters (specify absolute number)

\* No: Gender disaggregated vulnerability and capacity assessments

\* No: Agreed national standards for multi hazard risk assessments

### Description:

A detailed study of the national and local risk assessments are readily available and include risk assessments for key sectors within the country. The hazard data and vulnerability information covers that of all the communities nationwide. In addition to the National Hazard Profile that ensures decision makers and communities to fully understand their exposure to various hazards and the social, economic, environmental and physical vulnerabilities that they may face; a nationwide vulnerability and capacity assessment on the hazards and risks as per community also makes room to sensitise communities on the vulnerabilities that they may face and the capacities at their disposal to tackle them. The National Hazard Profile also allows communities to take effective action to reduce disaster and environmental risks. The department is in the process of reviewing national hazard profile to reflect emerging hazards across the country. For this purpose, all twelve District Disaster Management Committees have been tasked to develop district hazard profiles.

### Context & Constraints:

Context & Constraints:

Some District DM Committees have sent in hazard profiles of their districts, while others are on the process. As such there is lack of resources. This, thus calls for capacity building for some of our disaster management committees. There is also the need to compile chiefdom hazard profiles.

## Priority 2: Core indicator 2

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### Level of Progress achieved:

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### Are disaster losses systematically reported, monitored and analysed?

Yes

**Means of Verification:**

\* No: Disaster loss database

\* No: Reports generated and used in planning

**Description:**

Much progress has been made in this domain. Hazards and vulnerabilities are monitored and information is shared with communities. Hazard profile is continually being reviewed to include new vulnerabilities based on the changing times and circumstances. This information is shared in the disaster management committees nationwide which in turn disseminate the information to the people for an effective disaster management system. Total loss of disasters is also being monitored, reported and analysed by the department in collaboration with key stakeholders.

**Context & Constraints:**

One of the major constraints is that of accessibility to some remote areas in the country.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

No

**Means of Verification:**

\* No: Early warnings acted on effectively

\* No: Local level preparedness

\* No: Communication systems and protocols

\* No: Active involvement of media in early warning dissemination

**Description:**

There is some progress made in this area. This is seen in the fact that though the main provider of early warning for natural disasters, the national meteorological services got vandalized during the war, efforts are being made to restructure the whole system. With regards to man-made emergencies, the services of local radio stations are normally requested for since the disaster management department doesn't have a designated channel of its own.

**Context & Constraints:**

Re-equipping the meteorological station, recruiting and training of more personnel plus an improved

communications network/information channel to be provided for the coordinating institution.

## **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### **Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

### **Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues
- \* No: Regional and sub-regional strategies and frameworks
- \* No: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

### **Description:**

National policies have been developed, in collaboration with key partners. Because many of these partners have contributed to the process of developing such policies, ownership and a clear knowledge of institutional /departmental etc roles and responsibilities during disasters has been made possible. Sub-regional meetings are also held on a regular basis to develop sub-regional hazard/vulnerability/risk assessments with sub-regional response plans. These resources, both human and material are designed in such a way that they could be requested for at very short notice by any member country as and when the need arises. For localised disasters/risks that have the propensity to become sub-regional, meetings have also been done at various levels to map out contingency plans to address this. One challenge encountered here though is that not all of Sierra Leone's immediate neighbours have conducted national hazard/risk/vulnerability profiles. Thus writing out contingency plans hasn't always been reflective of the real issues facing those countries. An example could be cited of recent flooding that swept across from Sierra Leone to Liberia. is flooding in a border town near any of the neighbouring countries. Thus, Sierra Leone is part of the Mano-River and the ECOWAS (sub-regional and regional bodies) that have strong cooperation in terms of risk assessments and reduction activities. Contingencies plans are in place to cover inter-regional disasters and funds and stockpiles are readily available to support those plans. Sierra Leone is currently represented in the ECOWAS Emergency Response Team (EERT). The country is also participating in ECOWAS's effort to integrate DRR into Climate Change and Adaptation. We are also in close collaboration with neighbouring Liberia and the Republic of Guinea

### **Context & Constraints:**

A major challenge in transnational cooperation in DRR is that countries are not at the same level in terms of policy formulation and implementation.

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**Tanzania, United Rep of** (in English)

## Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

### Level of Progress achieved:

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### Is there a national multi-hazard risk assessment available to inform planning and development decisions?

Yes

### Means of Verification:

\* Yes: Multi-hazard risk assessment

\* 0 % of schools and hospitals assessed

\* 0 schools not safe from disasters (specify absolute number)

\* No: Gender disaggregated vulnerability and capacity assessments

\* No: Agreed national standards for multi hazard risk assessments

### Description:

PMO - DMD in collaboration with the Ministry of Agriculture and Food Security through National Food Security Team has been carrying out biannual Food Security and Nutrition Assessment for food unsecured District in the country. After analysis the report is available for Government and Donors interventions. Decentralization of the assessment is in place. Currently, in June 2010 two regions (Lindi and Mtwara) with their districts have been piloted, trained (on Tanzania Food Security and Nutrition Analysis System - Mfumo wa Uchambuzi wa Uhakika wa Chakula na Lishe – MUCHALI) and have conducted assessment and produced on their own Food Security and Nutrition Report. The process is going on for training in some other regions/districts later this year depending on budget.

For Zanzibar, Disaster Risks and Capacity Needs Assessment was done in 2008 which gives the risk and vulnerability map of Zanzibar on disaster issues. On the other hand the participatory needs and capacity assessment have been done in 85 Shehias while currently (October 2010) the assessment is carried out to other 50 Shehias of Zanzibar.

### Context & Constraints:

Risk assessment results are not fully utilized for intervention and planning purpose due to inadequate financial resources. Improving coordination and understanding of inter dependencies across Sectors is also a challenge. Others include ability to assess the full range of consequences and vulnerabilities, especially secondary impacts, comparative economic analysis and assessing non monetary costs.

## Priority 2: Core indicator 2

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### Level of Progress achieved:

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### Are disaster losses systematically reported, monitored and analysed?

No

**Means of Verification:**

\* No: Disaster loss database

\* No: Reports generated and used in planning

**Description:**

Still there is no formal centralized system for all hazards and/ or disasters data archive and disseminations, but different Sector based systems for monitoring the main natural hazards exist. Central and Local Government, Institutions, Agency and NGOs collect data relevant to their responsibilities, for example the Tanzania Meteorological Agency (TMA) provides information on weather and climate as part of early warning on drought, floods and other weather related risks monitoring in quarter basis. Ministry of Agriculture and Food Security through Early Warning Unit provides information and data on pests, rainfall for crop production, crop status and other externalities that might affect food security. The Ministry of Health and Social Welfare and Ministry of Livestock Development and Fisheries has surveillance systems to monitor human and animal epidemics. Tanzania National Bureau of Statistics (NBS) collects and disseminates data on a more regular basis.

**Context & Constraints:**

There is a process for disaster database updating and development. There is a need to improve coordination and developing data sharing protocols and mechanism.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

-- Nothing reported within this timeframe. --

**Means of Verification:**

\* No: Early warnings acted on effectively

\* No: Local level preparedness

\* No: Communication systems and protocols

\* No: Active involvement of media in early warning dissemination

**Description:**

Tanzania has different Early Warning Systems to monitor various hazards. The early warning systems within the Government system include: the Tanzania Meteorological Agency (TMA); Seismology Unit under the Ministry of Energy and Minerals, the Emergence Preparedness and Response Unit (EPRU) under the Ministry of Health and Social Welfare; Plant Protection Unit and Food Security Department under Ministry

of Agriculture and Food Security. Non – government one is Famine Early Warning System Network (FEWS NET). Information on hazards/disasters such as drought, floods, pests, earthquake and diseases are passed on to the community through government publication on media, information through media and meeting between local community and their leaders.

The UN agencies in Tanzania have formed an emergency coordination group which receives and disseminate disaster information. Emergency Coordination Group Focal Point is responsible to communicate with relevant government organs, specifically PMO soon after receiving any information on hazard and disasters.

The existing Early Warning System in Zanzibar is available through daily TV and Radio broadcasted weather focus produced by Tanzania Meteorology Agency Zanzibar Zone. Other early warning is provided by Public Health Department of the Ministry of health and Social Welfare on threats of eruption of epidemics; and Ministry responsible for agriculture on threats of famine and food security issues.

DMD of Zanzibar plans to have Emergency Situation Room (ESR) to be equipped and capacitated by UNDP of which one of its functions is to be a central point of all sectors for issuing early warning in the country. The room will start its operation on early November 2010. The system clearly explained in the ZDCS.

The ESR among other things will be responsible in collecting all emergency related information from emergency response agencies; providing a location for meetings of the emergency committees; display of information, maps and logs relating to the emergency; analyzing all collected and/or received information and disseminate them to the appropriate authority for appropriate actions; preparing and issuing a daily situation report on emergencies if necessary; prepare media programmes and press briefing for public information; and monitor all disasters on 24 hours especially rapid onset disasters.

The DMD of Zanzibar is further planning to have a comprehensive data base of disaster related information to be used for both working and research purposes. This will be carried out through UNDP 2011 – 2015.

#### **Context & Constraints:**

The Early Warning System in the country is inefficient due to lack of enough skilled manpower, equipment, technology and financial resources. These hinder the capacity for accurate and timely collection, process and release of early warning data and information.

Challenge is how to establishing a National Emergency Operation Centre for appropriate warning systems and response arrangements for future disasters. For effective dissemination and use of early warning information it is necessary to emphasis on public education programs at both the national and local level.

Similarly traditional prediction mechanisms have not been developed to provide reliable information. In general there is no comprehensive warning system in the country. Therefore, main challenge is to have developed and strengthened of warning systems for all disasters to be efficient and ensure timely dissemination of information.

#### **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

#### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

**Description:**

Government, Regional, International and Local Agencies and Organizations consider cross - jurisdictional boundary issues in their disaster risk management and emergency planning and warning. TMA works closely with regional bodies like SADC and EAC on data process, sharing and dissemination. National Avian Influenza Emergency Preparedness and Response Strategic Plan (EPRP) of 2006/7-2008/9 its revised version (NAPIP) and new RVF – EPRP both for 2010/11 – 2012/13 has also been harmonized with the regional preparedness plan such as the Southern Africa Development Cooperation (SADC), East African Community (EAC), and African Union Inter-Bureau for Animal Resources (AU-IBAR).

The country shares land boundaries with eight countries but hazards and risks assessment reports are mainly based on local exercises only. Tanzania cooperates inter - regionally and globally through international meetings/platforms that undertake risk assessments and set policy and best practice standards, to manage regional and global hazards and risks. For example the Ministry of Health and Social Welfare works with Centre for Disease Control (CDC) under sponsorship of USAID with Schools of Public Health in East and Central Africa. They developed curriculum and train students and workers in field of public health on disaster preparedness and response as well as facilitating districts to prepare disaster response plan. Also the National Influenza Centre (NIC) laboratory was established with the support from CDC and WHO.

**Context & Constraints:**

The main challenge faced with these regional collaborative bodies continues to be funding and marginalization of disaster risk management activities. There is a need to enforce all regional bodies to have a special desk for disaster management. Sensitization, lobbying and advocacy for policy makers to assure budget for trans-boundary disaster risk reduction.

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**Zambia** (in English)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

**Means of Verification:**

- \* Yes: Multi-hazard risk assessment
- \* 1 % of schools and hospitals assessed
- \* 178 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* Yes: Agreed national standards for multi hazard risk assessments

**Description:**

The country has carried out the Comprehensive Vulnerability Assessment and Analysis (CVAA) in 21 districts which is meant to provide for vulnerability and hazard profiling in those districts. Some partner NGOs have carried out some Participatory Comprehensive Assessments in some districts of Western and Southern Provinces.

**Context & Constraints:**

The CVAA will be the basis for mainstreaming DRR activities in development planning. However, the process has been hampered by inadequate funding to carry out the Comprehensive Vulnerability assessment and Analysis in all the districts.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

- \* Yes: Disaster loss database
- \* Yes: Reports generated and used in planning

**Description:**

DMMU has developed the Emergency Operations Center (EOC) which is supposed to be a depository of information related to vulnerability, risks and hazards among other things. The EOC is still being equipped so that it serves as a nerve center for the Early Warning System for monitoring identified hazards in the country.

DMMU in collaboration with the UN has developed an information platform called Zambia Emergency Preparedness and Response System (ZEPRIS). The ZEPRIS is an integrated Information system consisting of a Database System and data sharing platform developed and deployed using a Scalable Data Warehouse (SDW) as the system backbone whose main purpose is to afford all allowed user access to information that they can use for their planning and response activities. Each critical sector will be expected to contribute relevant information to this database. User trainings for stakeholders have already been

conducted in Southern, Copperbelt and Western Provinces of the country.

**Context & Constraints:**

There has been difficulty in getting some data from some of the sectors.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

**Description:**

The Early Warning Systems for major hazards are in place in Zambia. DMMU is the body that coordinates all Early Warning activities in the country. The Zambia Metrological Department gives warning to weather related hazards such as droughts and floods. The Ministry of Energy and Water Development also gives hydrological data which aids in the determination of floods and also hazards in the country. The National Early Warning Unit in the Ministry of Agriculture and FEWSNET gives early warning on Food Security.

DMMU has an Early Warning System Project whose goal is to empower individuals and vulnerable communities threatened by floods and other hazards to act in sufficient time and in an appropriate manner to reduce the possibility of personal injury, loss of life and damage to property and the environment. The Project is funded by the World Bank with counterpart funding from the Government Republic of Zambia.

There are also NGOs who are using indigenous knowledge for early warnings at the local level and are using established structures at that level for disseminating such early warning information.

**Context & Constraints:**

There are efforts to try and use local radio stations to disseminate early warning information at the district and community levels. However, resources for the districts for carrying out this activity are rather limited.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

**Description:**

Risks include transboundary diseases for both human and livestock.

**Context & Constraints:**

Animal diseases such as Contagious Bovine Pleural Pneumonia (CBPP) mainly prevalent in North Western border of the country and have been difficult to contain. There are plans to embark on vaccination exercises that involve neighbouring governments doing their own vaccination of these trans-boundary diseases at the same time.

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# Americas

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## Anguilla (in English)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

#### Level of Progress achieved:

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

#### Is there a national multi-hazard risk assessment available to inform planning and development decisions?

No

#### Means of Verification:

\* No: Multi-hazard risk assessment

\* 0 % of schools and hospitals assessed

\* 0 schools not safe from disasters (specify absolute number)

\* No: Gender disaggregated vulnerability and capacity assessments

\* No: Agreed national standards for multi hazard risk assessments

#### Description:

Pilot of HRV assessment approach undertaken and it is anticipated a further two models will be tested before a final decision is taken to roll out an appropriate model in the community. Baseline Assessment Tool has been completed.

#### Context & Constraints:

A comprehensive hazard, risk and vulnerability assessment is ongoing and expect to be completed shortly. From previous studies the results identified that base information is old and was developed as a part of larger regional initiatives which was not applicable to a local study.

Present data is also incorrect on a custom spheroid in the GIS and not open to easy editing or extension of the features. Attributes almost non existent. Flood boundaries are "estimates" based on visual only.

Time constraints are present.

### Priority 2: Core indicator 2

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

#### Level of Progress achieved:

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

#### Are disaster losses systematically reported, monitored and analysed?

Yes

**Means of Verification:**

- \* Yes: Disaster loss database
- \* No: Reports generated and used in planning

**Description:**

Will be improved with HRV assessments and R3i, GIS and Hazard Mapping Initiatives

A storm surge and wave model for a north west hurricane and not only the north east and south east paths is required.

TAOS in use for storm monitoring.

Programme in place to share risk information with large developers and this initiative is maturing.

**Context & Constraints:**

Staff, time and experience

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

**Description:**

Robust backbone system in place, tested and documented.

Radio interrupt, text to voice system, internal computer pop-up in place.

Needs public registration component, education, training and outreach for 2010.

Communications Officer only recently in post and working towards drafting a National Communications Policy and Plan, facilitating a Disaster Web Page. Policy Procedures and Protocols for National Warning System.

Participation in Regional Rap. Deputy Chair of ICG/UNESCO Global Warning System Working Group 3. Radio Training Manual.

**Context & Constraints:**

Extremely limited staff and limited technical knowledge of systems outside the director, communications officer and an IT technician.

Defective equipment has been highlighted as a concern but budget constraints make improvements difficult at this time.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

\* Yes: Programmes and projects addressing trans-boundary issues

\* Yes: Regional and sub-regional strategies and frameworks

\* Yes: Regional or sub-regional monitoring and reporting mechanisms

\* Yes: Action plans addressing trans-boundary issues

**Description:**

Relationships have been formed via the tripartite with Dutch Sint Maarten and Saint Martin. Progress is starting on this via an EU funded initiative put together by the OCTs. Maritime Search and Rescue Plan available upon request to NDMC. Oil Spill Plan, Regional Representative fore mainstreaming DRR and CLimate Change. FCO Audit, CDEMA Audit, HFA, BAT, OECS BTool, CDEMA ICA, CDM Annual Status, CDEMA Annual Coutry Report and Workplan.

**Context & Constraints:**

Travel budgets and need for committment of resources from other agencies. Copies of strategies and plans are available upon request to the NDMC.

**Antigua and Barbuda** (in English)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

**Means of Verification:**

- \* Yes: Multi-hazard risk assessment
- \* 100 % of schools and hospitals assessed
- \* 5% schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* Yes: Agreed national standards for multi hazard risk assessments

**Description:**

The lack of finance, and the absence of clearer commitment to the risk reduction process.

**Context & Constraints:**

A comprehensive assessment of all schools, Clinics, and other critical facilities has been completed and reside in a data base. This assessment is an ongoing activity

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

- \* Yes: Disaster loss database
- \* No: Reports generated and used in planning

**Description:**

A disaster loss data base is maintained by the NODS. However more work is needed to mandate the use of this information into the development process.

**Context & Constraints:**

Lack of adequate equipment, skills and other resources are responsible for the low level of achievement. An annual report will reflect any damage impact report in Antigua and Barbuda.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* No: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

**Description:**

The vast majority of those living in vulnerable areas are usually targeted by the media houses, with strong support from the community and community leaders.

**Context & Constraints:**

Like any society, there is usually a small element that waits until the last minute to take any action.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* No: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

**Description:**

The region is made up of a lot of small Islands with limited resources and how much assistance one can give to its neighbor is usually very limited, yet there is a system to do just this. This system needs to be expanded to enhance trans-regional issues and by doing so will strengthen our overall disaster management system

**Context & Constraints:**

The region is constrained by language, geography, lack of technology, etc.

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## Argentina (in Spanish)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

-- Nothing reported within this timeframe. --

**Means of Verification:**

- \* No: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

También en éste se necesitaría un punto intermedio entre el 3 y el 4 para aplicar el nivel de progreso real. Argentina tiene constituido un Grupo de Proveedores de Información Primaria (que integran desde la Comisión de Actividades Espaciales, el Instituto Nacional del Agua, el Instituto de Prevención Sísmica, el Instituto de Estadísticas y Censos, etc.) un Grupo de Monitoreo de Alertas (Dirección de Protección Civil, Cuerpo de Bomberos, Fuerzas Armadas, Dirección Nacional de Emergencias Sanitarias, etc.), activos y de reunión y seguimiento continuo.

Estos grupos luego difunden información a los ámbitos provinciales y locales según la necesidad, y permiten conocer la evolución de los sucesos que pueden convertirse en riesgo de la misma manera que están permitiendo la identificación de vulnerabilidades con la anticipación suficiente como para que luego los responsables puedan actuar apropiadamente.

Este GPIIP ha evolucionado actualmente, constituyendo una Secretaría Ejecutiva que funciona físicamente en el ámbito del Instituto Geográfico Nacional (ex IGM).

A ello se le suma el Grupo de Monitoreo que coordina la Dirección Nacional de Protección Civil, que mantiene nueve reuniones anuales y seguimiento on-line.

A su vez, la Cruz Roja Argentina ha desarrollado el Documento País con amplia consulta en sus Talleres.

**Context & Constraints:**

Las limitaciones presupuestarias y, en oportunidades, informes de un nivel técnico excesivamente complejo para el entendimiento de comunidades locales con menor nivel científico-tecnológico, han derivado en que los informes no resulten aptos para la resolución de la problemática.

En esta línea los desafíos principales apuntan a armonizar metodologías de investigación y análisis; facilitar el acceso a la información, impulsando proactivamente la diseminación de los materiales incluyendo la interacción entre los niveles nacionales, provinciales y municipales; y su adaptación para facilitar la comprensión por personas y comunidades no especializadas.

Aprovechar los diferentes espacios de coordinación nacional (y federal), incluyendo la Plataforma Nacional de RRD, para relevar y sistematizar estos estudios o informaciones, “atraer” iniciativas no tan conocidas y facilitar un proceso de “armonización” metodológica, capitalizando el fuerte posicionamiento que está teniendo el sector académico en la RRD.

Asimismo, se pueden aprovechar los canales de distribución de información habituales, las redes existentes y las plataformas virtuales en funcionamiento para compilar y difundir estos productos.

Las Organizaciones de la Sociedad Civil (OSC) son actores fundamentales al momento de promover y facilitar el acceso de estos datos, informaciones, estudios, etc entre los niveles comunitarios.

Una vez detectada la vulnerabilidad, la información acorde al nivel y recursos de la autoridad de aplicación será necesaria. A ello se tenderá, gracias al conocimiento de esta situación que se obtuvo a partir de los intercambios en la Plataforma Nacional

## **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### **Are disaster losses systematically reported, monitored and analysed?**

-- Nothing reported within this timeframe. --

### **Means of Verification:**

\* No: Disaster loss database

\* No: Reports generated and used in planning

### **Description:**

Por lo mismo expuesto en el anterior ítem, se puede decir que los sistemas están habilitados, aunque el nivel de conocimiento general de la comunidad sobre esos resortes aún es escaso y, en algunos casos, hay desconocimiento sobre las fuentes de datos disponibles entre los mismos actores.

Son escasos los sistemas permanentes y metodológicamente coherentes de gestión de datos sobre amenazas y vulnerabilidades.

Por ejemplo, existe una base de datos de Argentina pública, gratuita y de libre acceso llamada DesInventar que viene registrando sistemáticamente y bajo rigurosos criterios metodológicos de recopilación nacional la recurrencia de eventos derivados en emergencias y desastres entre 1970 y 2009, pero que no es tan conocida por la comunidad.

### **Context & Constraints:**

En esta línea los desafíos principales apuntan a armonizar metodologías de investigación y análisis; facilitar el acceso a la información, impulsando proactivamente la diseminación de los materiales incluyendo la interacción entre los niveles nacionales, provinciales y municipales; y su adaptación para facilitar la comprensión por personas y comunidades no especializadas.

Aprovechar los diferentes espacios de coordinación nacional (y federal), incluyendo la Plataforma Nacional de RRD, para relevar y sistematizar estos estudios o informaciones, “atraer” iniciativas no tan conocidas y facilitar un proceso de “armonización” metodológica, capitalizando el fuerte posicionamiento que está teniendo el sector académico en la RRD.

Asimismo, se pueden aprovechar los canales de distribución de información habituales, las redes existentes y las plataformas virtuales en funcionamiento para compilar y difundir estos productos. Las Organizaciones de la Sociedad Civil (OSC) son actores fundamentales al momento de promover y facilitar el acceso de estos datos, informaciones, estudios, etc entre los niveles comunitarios. El público general necesita que los datos sean accesibles.

### **Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

#### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

#### **Do risk prone communities receive timely and understandable warnings of impending hazard events?**

-- Nothing reported within this timeframe. --

#### **Means of Verification:**

- \* No: Early warnings acted on effectively
- \* No: Local level preparedness
- \* No: Communication systems and protocols
- \* No: Active involvement of media in early warning dissemination

#### **Description:**

Los logros alcanzados, a través de los variados actores involucrados tanto en el Grupo de Proveedores de Información Primaria como en el de Monitoreo de Alertas, y algunas bases de datos consolidadas (como la del Instituto Geográfico Nacional y otros) permiten ser optimistas en este capítulo, sin perjuicio de lo cual las limitaciones fundamentalmente presupuestarias constriñen el desarrollo de esta capacidad. La capacidad técnica y tecnológica de Argentina es reconocida y valorada en ese sentido (en particular en alcances satelitales).

El "Proyecto de Ley de Prevención y Alerta Temprana en caso de caudales extraordinarios por funcionamiento de la Presa Potrerillos", con media sanción de la Cámara de Senadores de la Provincia de Mendoza, apunta también favorablemente en este sentido.

#### **Context & Constraints:**

Son pocos los SAT que incluyan los 4 componentes.

En general, la información distribuída no dispara acciones planificadas tempranas, no llega rápidamente a los niveles locales y en muy pocas ocasiones incluye el componente comunitario de base como actor indispensable y activo del SAT. Muchas veces quedan en circuitos institucionalizados cerrados y pasivos (listas de correos, páginas web, etc).

Se vuelve, en cuando a limitaciones, a la escasa información que llega a la comunidad, lo que indudablemente puede afectar su capacidad de respuesta.

### **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

\* Yes: Programmes and projects addressing trans-boundary issues

\* Yes: Regional and sub-regional strategies and frameworks

\* No: Regional or sub-regional monitoring and reporting mechanisms

\* No: Action plans addressing trans-boundary issues

**Description:**

El hecho más auspicioso de este período, ha sido la constitución de la REHU - Reunión Especializada de Reducción de Riesgos de Desastres Socio-naturales, la Defensa Civil, la Protección Civil y la Asistencia Humanitaria del MERCOSUR. Allí, como el propio nombre lo indica, se atiende a la RRD y en el marco de los países miembros del MERCOSUR. Esta REHU está cumpliendo su primer año de vida, pero avanza considerablemente en su consolidación interna.

Asimismo, existe un Comité de Cuencas entre los países de la región, de los que Argentina ocupa un lugar activo precisamente a través de la Secretaría de Provincias del Ministerio del Interior.

También colaboran en ello inter-institucionalmente aquellas ONG con radicación en varios países de la región (FICR, Habitat por la Humanidad, etc.).

Asimismo, por razones históricas y regionales (comparten una fuerte actividad sísmica), provincias como la de San Juan y la Región Central chilena suelen intercambiar información y alertas.

**Context & Constraints:**

No obstante ello, hasta el momento no hay políticas preventivas conjuntas y se comparten en general apoyos solamente en las emergencias propiamente dichas.

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**Barbados** (in English)**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

-- Nothing reported within this timeframe. --

**Means of Verification:**

\* No: Multi-hazard risk assessment

- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

Vulnerability assessments, hazard maps and risk assessments for critical infrastructure are not generally applied to be able to holistically inform development planning. In the case of the Town and Country Planning Department and the Coastal Zone Management Unit, development regulation on the coast is based on the 100-year storm surge inundation line, and coastal setbacks are measured based on distance from this benchmark.

There are vulnerability assessments, hazard maps developed for the Scotland District area of Barbados, which constitutes 1/7 of the island’s land mass that is prone to landslides and soil erosion. There is also the institutional framework of the Soil Conservation Unit within the Ministry of Agriculture, and legislation: the Soil Conservation Act, which is the driving force. DRR initiatives in this area include structural and non-structural mitigation. One such mitigation measure is the re-location of communities in landslide-prone and severe flooding areas.

To tackle the problem of inland and marine flooding, the Drainage Unit under the Ministry of the Environment, Water Resources and Drainage has been mandated to conduct vulnerability assessments, flood hazard maps and risk assessments in a systematic way, as well as mitigation works.

The Government has committed significant resources (US\$30 million) to a comprehensive coastal risk assessment and management programme, that will conduct vulnerability assessment, hazard mapping, and risk assessments for the major coastal hazards identified for Barbados.

Government has put in place a series of incentives to boost DRR actions on the part of individual households and commercial entities. Incentives include retrofitting against wind (hurricane straps and shutters) and water collection systems.

**Context & Constraints:**

Resources are limited to carry out the required assessments and hazard maps for non-coastal hazards. In the built environment, the enactment of the Barbados Building Code would make legislative demands mandatory and the policing mechanism would be provided for in the Barbados Building Authority.

**Recommendations**

- Accelerated enactment of the Barbados Building Code and the enforcement mechanism must be an integral part of any short to medium-term implementation plan for hazard and risk assessments.
- An inventory of vulnerable housing infrastructure must be conducted, so that impact zones may be delineated for wind and flash flood hazard assessments
- Capacity development must be included in any future programmes.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Are disaster losses systematically reported, monitored and analysed?**

-- Nothing reported within this timeframe. --

**Means of Verification:**

\* No: Disaster loss database

\* No: Reports generated and used in planning

**Description:**

Over the years, a number of individual agencies have compiled key data and information within Geographic Information Systems platforms, including DEM, Town and Country Planning, Lands and Surveys and Coastal Zone Management Unit. These data systems have informed limited decision making within the specific ambit of the agency managing it. In some cases, project funding enabled the establishment of the platforms but sustainability of the system was hampered due to insufficient capacity development over time to maintain databases with current information.

Some of the datasets collated such as sea level, seismic, beach profile measurements are housed in specific agencies, but not integrated for use in early warning systems.

The Emergency Management Act 2006 provides the authority for DEM to access any and all available information for DRR and disaster management purposes. While this provision will prove useful in the future, capacity within the coordinating agency does not allow its widespread utilization at this juncture.

Under the previously described coastal risk assessment and management programme, a scientifically-based integrated coastal risk data and information platform will be established, available to all sectors of the national emergency management system, and key economic sectors. Reports will be generated and management options tested. Those identified as best options will be implemented island-wide.

**Context & Constraints:**

Having already obtained the approval for the coastal risk information platform, the only constraint relates to incorporating non-coastal hazard data and information into the platform for use by key stakeholders.

The issue of limited capacity to effectively utilize the platform by key stakeholders will prevent optimal use for decision making.

**Recommendation**

Capacity must be built to ensure that all users of the risk data and information platform are able to fully utilize the available resources for decision making.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial

resources and/ or operational capacities

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

-- Nothing reported within this timeframe. --

**Means of Verification:**

- \* No: Early warnings acted on effectively
- \* No: Local level preparedness
- \* No: Communication systems and protocols
- \* No: Active involvement of media in early warning dissemination

**Description:**

Hurricanes, and floods, are the main hazards to which Barbados is vulnerable and the Early Warning Systems (EWS) for these meteorological threats are well established. The Barbados Meteorological Services is the key warning agency which utilizes Doppler Radar Technology, satellite imagery and other technologies to provide forecasting. The Met Service then collaborates with the Department of Emergency Management and the Emergency Broadcast Agencies in timely dissemination of warnings to the public, through a series of bulletins, advisory, watches and warnings.

An EWS for floods has been initiated in one of the flood prone communities where the population has been severely impacted. Plans are in train to replicate this in other flood prone communities in support of other flood mitigation options.

A draft warning protocol for tsunamis has been developed, although the mass notification process is being further enhanced by the provision of sirens in key vulnerable locations and the incorporation of cellular technology.

The Seismic Research Centre (SRC) located at the University of the West Indies at St. Augustine Campus, Trinidad and Tobago provide education and information on seismic hazards.

The Government of Barbados signed a Memorandum of Understanding with the United States Geological Survey (USGS) to establish a seismic monitoring unit to provide real time data regarding earthquake activity in Barbados and the adjacent regions, thereby enhancing the national capability to confirm to the population earthquake and possible aftershock activity.

**Context & Constraints:**

There is limited access to financial resources, technical capacity and maintenance to implement a Comprehensive Multi-hazard Early Warning System.

The coordination necessary to synthesize all required data for modeling and analysis does not yet exist within the national framework.

There are limited financial resources available to maintain and upgrade these EWS.

System maintenance and training across the entire spectrum of early warning is proving to be challenging due to attrition.

The pace of development of EWS components is delayed by human and financial resource limitations.

Some of the key hazards, such as earthquakes and tsunamis, are virtually unknown to the general public, thus the effort required to bring the population to an acceptable level of awareness represents a significant challenge.

#### Recommendations

Continue the expansion of the Emergency Broadcast System to incorporate current technology for mass dissemination of warning information.

Target specific vulnerable communities and enhance local communications systems to augment the national early warning systems.

Secure funding through government budgetary provision and or other donor funding to further strengthen and enhance the EWS for multi-hazards, through capacity building and equipment upgrades.

### **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

#### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

#### **Does your country participate in regional or sub-regional DRR programmes or projects?**

-- Nothing reported within this timeframe. --

#### **Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues
- \* No: Regional and sub-regional strategies and frameworks
- \* No: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

#### **Description:**

Barbados is one of the 16 Participating States (PS) of the CDEMA. The CDEMA Coordinating Unit promotes and facilitates the exchange of disaster risk reduction information and best practice, training, cooperation and collaboration among its members in the context of the Comprehensive Disaster Management Strategy and Framework.

The Regional Response Mechanism (RRM) facilitates cooperation between PS of CDEMA and provides for national, regional and international support in times of crisis.

Barbados is a member of the Eastern Caribbean Donor Group (ECDG) which also provides a coordinating mechanism for responding to the needs of the Eastern Caribbean in the event of a disaster. ECDG is an information-sharing mechanism designed to avoid duplication of effort and resources.

Barbados is a member of the Regional Security System (RSS) which coordinates security resources and provides an enhanced response capability in time of emergency/disaster.

Barbados actively cooperates with regional and international entities in the execution of risk reduction initiatives for multi-hazards and trans-boundary risks, including:

- Caribbean Development Bank, CDB,
- United Nations Development Programme, UNDP,
- Organisation of American States, OAS,
- Association of Caribbean States, ACS,
- Canadian International Development Agency, CIDA,
- United States Aid for International Development/Office of Foreign Assistance, USAID/OFDA,
- Intergovernmental Oceanographic Commission of UNESCO,
- Caribbean Institute for Meteorology and Hydrology, CIMH, and
- Caribbean Community Climate Change Center.

Barbados is the current Chair and major champion for the Tsunami and Coastal Hazards Warning System for the Caribbean and Adjacent Regions. In this context, national components of the system are being installed under the auspices of the DEM Standing Committee on Coastal Hazards. Sea level and seismic monitoring, hazard assessment, national warning communications, modeling efforts and public education, are all being implemented, with a view to having a functional warning system in place by the end of 2012.

#### **Context & Constraints:**

As a small island developing state, Barbados has severe capacity limitations to fulfill the obligations of all regional and international programmes for DM and DRR. As a consequence, the maximum possible benefits are usually not realized from these programmes, unless the regional organisation itself has a very strong human resource base, and is able to render significant levels of on-hands assistance to countries when necessary.

#### **Recommendations**

To prevent duplication and maximize benefits to all countries, regional and international organisations must coordinate when they are conducting programmes in overlapping areas. In the Caribbean region, there is some effort in this regard, but much more can and must be accomplished in order for island states to realize their true potential in disaster management.

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## **Bolivia** (in Spanish)

### **Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

#### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

#### **Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

#### **Means of Verification:**

\* Yes: Multi-hazard risk assessment

\* 0 % of schools and hospitals assessed

\* 0 schools not safe from disasters (specify absolute number)

\* Yes: Gender disaggregated vulnerability and capacity assessments

\* No: Agreed national standards for multi hazard risk assessments

**Description:**

Evaluación del riesgo de múltiples amenazas si con los dos informes preparados por la CEPAL Niño 2007, y Niña 2008. Niño 2009/2010. Informes que no son de conocimiento general.

Evaluaciones sobre las vulnerabilidades y las capacidades desagregadas por género Trabajo realizado por la CEPAL 2008 donde se establecen los danmificados por sexo.

**Context & Constraints:**

Los resultados y recomendaciones de estas evaluaciones no siempre son tomados en cuenta.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

\* No: Disaster loss database

\* Yes: Reports generated and used in planning

**Description:**

Bases de datos sobre las pérdidas que ocasionan los desastres  
Existe un seguimiento por parte de Defensa Civil y que ahora se ha plasmado en los reportes sobre medio ambiente del INE. También se tiene la base de datos de 30 años preparada por el DESINVENTAR.  
También existe una base de datos de por lo menos los 3 últimos años de seguimiento a nivel municipal por parte de la FAM. Lo que no hay es una difusión permanente, facilidades de acceso y la calidad del dato no necesariamente es confiable por los diferentes enfoques y metodologías que tiene cada institución.

**Context & Constraints:**

Se han utilizado para la formulación de los planes de rehabilitación y reconstrucción, no así en los planes sectoriales de desarrollo.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* No: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* No: Communication systems and protocols
- \* No: Active involvement of media in early warning dissemination

**Description:**

Trabajos realizados por las ONG's que trabajan de manera conjunta con los Gobiernos Municipales, estos trabajos no son coordinados con instancias nacionales.

Existen trabajos que se han realizado por diferentes ONG's y Agencias de NNUU en el Oriente Boliviano, que este año han logrado trabajar sobre cuencas (Mamore), Cuenca baja del Rio Grande, Rio Pirai, Alto San Pedro. Riberalta.

y Loreto. Estas iniciativas si bien han sido coordinadas con el SENAHMI, no necesariamente son uniformes, con protocolos estándares y se establecen de acuerdo a criterios del financiador

**Context & Constraints:**

Estos sistemas No necesariamente son sostenibles en el Largo Plazo por problemas de financiamiento

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

**Description:**

En el contexto transfronterizo, el trabajo realizado en el Chaco (sequía) y en la Amazonia (inundación). Comités de frontera particularmente con Perú y Chile. Siendo uno de los subtemas es el de catástrofes y

gestión del riesgo de desastres.

Autoridad Bi-Nacional Autónoma del Sistema Hídrico del Lago Titicaca (ALT) que trabaja sobre el control de las aguas de la cuenca del Titicaca y problemas de riesgos ambientales.

En relación a las estrategias y esquemas regionales, el CAPRADE, y la estrategia EAPAD articulado a Hyogo.

Primer informe regional CAPRADE 2008 y el que se realiza para el 2010-2011

**Context & Constraints:**

Lamentablemente las experiencias y productos logrados por el Proyecto PREDECAN. Voluntariado para Emergencias y Recuperación Temprana (FICR) y con Cascos Blancos (OEA). tienen muy poca difusión para su aplicación.

## Brazil (in English)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

-- Nothing reported within this timeframe. --

**Means of Verification:**

- \* No: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

Mapeamento, em períodos não superiores a 5 anos, ou em razão de demandas específicas, das áreas de risco urbano e rural, coordenado pelos órgãos municipais de Defesa Civil, envolvendo a comunidade na identificação de riscos e estrutura de resposta, com uso das geotecnologias, e com registros de séries históricas dos danos e da população atingida, para definição de ações preventivas, disponibilizando as informações para os demais órgãos do Sistema Nacional de Defesa Civil - SINDEC.

**Context & Constraints:**

A Política Nacional de Defesa Civil aprovada em 1995 apresenta um conjunto de diretrizes e metas

visando à redução do impacto imediato dos desastres e dos seus efeitos frente à vulnerabilidade das comunidades. Entretanto devido a fragilidade do Sistema Nacional de Defesa Civil – Sindec, a falta de percepção de risco da sociedade, dentre outras causas, foi realizado em março de 2010 a 1ª Conferência Nacional de Defesa Civil e Assistência Humanitária – CNDC com o objetivo de discutir uma defesa civil mais proativa e eficiente.

Das 100 diretrizes aprovadas na Conferência destacam-se a revisão da legislação de defesa civil com enfoque as ações preventivas, de capacitação e envolvimento da sociedade; a criação da carreira e profissionalização dos agentes de defesa civil com formação operacional, técnica, média e superior; realização de obras preventivas com a realocação de pessoas, a retirada de edificações das áreas vulneráveis, execução de obras de infraestrutura preventiva, recuperação de espaços degradados e reconstrução emergenciais.

## **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### **Are disaster losses systematically reported, monitored and analysed?**

-- Nothing reported within this timeframe. --

### **Means of Verification:**

\* No: Disaster loss database

\* No: Reports generated and used in planning

### **Description:**

: Gerenciamento de informações de riscos e de desastres através de 3 sistemas, o de Monitoramento, Alerta e Alarme- SIMA, o de Resposta, Auxílio e Atendimento à População - SIRAP e o Sistema de Informação de Desastres no Brasil- SINDESB. Os objetivos do SIMA são; permitir o compartilhamento de informações e o monitoramento de parâmetros dos eventos adversos, 24 horas por dia, em articulação com os centros de previsão (climática, hidrológica, sismológica e outros); elaborar e emitir boletins antecipados, resultando na tomada de decisão oportuna, na redução do tempo-resposta, na antecipação de medidas preventivas; e informar os órgãos do SISDEC e a população por meio de emissoras de rádio e televisão, uso de auto-falantes, e outros. Os do SIRAP: quando notificado o desastre, permitir o acionamento e a pronta mobilização dos grupos estaduais e federais de resposta aos desastres; orientar a população atingida pelo desastre sobre o modo de buscar socorro e proteção; utilizar a Rede Nacional de Emergência de Radioamadores - Rener para suprir os meios de comunicações usuais quando os mesmos não puderem ser acionados em razão de desastre; e coordenar e alocar recursos humanos e materiais para a pronta resposta ao atendimento emergencial dos afetados por desastres. Os do SINDESB: registrar e manter um banco de dados históricos dos desastres ocorridos no Brasil, oferecendo subsídios às áreas de planejamento, operação e técnica da SEDEC e aos demais órgãos do SINDEC; e fornecer informações para consulta e elaboração de relatórios gerenciais, permitindo maior rapidez e eficácia.

### **Context & Constraints:**

Promover a consolidação e a interligação das informações de riscos e desastres no âmbito do Sistema Nacional de Defesa Civil, mediante a criação de uma rede de centros de operações dos órgãos de Defesa Civil, nos três níveis de Governo, com operacionalização do CENAD 24 horas por dia e a aquisição dos equipamentos de informática e comunicação/geoprocessamento, consolidando a Rede Nacional de

### **Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

#### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

#### **Do risk prone communities receive timely and understandable warnings of impending hazard events?**

-- Nothing reported within this timeframe. --

#### **Means of Verification:**

- \* No: Early warnings acted on effectively
- \* No: Local level preparedness
- \* No: Communication systems and protocols
- \* No: Active involvement of media in early warning dissemination

#### **Description:**

Desenvolvimento e construção de edificação para abrigar o Centro Nacional de Gerenciamento de Riscos e Desastres - CENAD, em terreno localizado em Brasília e de domínio do Patrimônio da União. Além do Alerta 199, um projeto que surgiu como uma resposta à necessidade de disponibilizar novos meios de comunicação que pudessem estimular a conscientização e a mobilização social e das instituições diretas do SINDEC (Sistema Nacional de Defesa Civil) em casos de emergência e calamidade pública. Sua missão é promover a utilização das redes sociais como meios eficazes de comunicação sobre riscos e emergências e de gerenciamento de desastres. O projeto Alerta 199 é uma contribuição para tornar a Defesa Civil brasileira mais preparada no que diz respeito à prevenção e gerenciamento de desastres, e na articulação de informações para a tomada de decisão em momentos de emergência.

#### **Context & Constraints:**

Criar espaço físico próprio e adequado para abrigar, em caráter definitivo, o Centro Nacional de Gerenciamento de Riscos e Desastres - CENAD, com a finalidade de exercer a coordenação de rede nacional de informações para a prevenção e o atendimento de desastres no país e disponibilizar os alertas em redes sociais para que atinjam um maior número de pessoas num menor espaço de tempo.

### **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

#### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

#### **Does your country participate in regional or sub-regional DRR programmes or projects?**

-- Nothing reported within this timeframe. --

**Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues
- \* No: Regional and sub-regional strategies and frameworks
- \* No: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

**Description:**

Fórum Nacional na cidade de Ponta Porã, fronteira com o Paraguai, onde, entre outros temas, foi discutido a integração entre instituições municipais de defesa civil. Participação na reunião Especializada de Redução de Riscos de Desastres Socionaturais, Defesa Civil, Proteção Civil e Assistência Humanitária – REHU, do Mercosul e articulação com mecanismos similares de blocos sub-regionais vizinhos.

**Context & Constraints:**

Após a mobilização para a construção de políticas públicas em Defesa Civil com a 1ª Conferência Nacional de Defesa Civil, realizada em março de 2010, a Secretaria Nacional de Defesa Civil - SEDEC/MI e a Coordenadoria de Defesa Civil de Ponta Porã, em parceria com o Centro Universitário de Estudos e Pesquisas sobre Desastres CEPED UFSC, promovem o VII Fórum Nacional de Defesa Civil. Com o tema da Campanha "Cidades Mais Seguras" o VII Fórum ocorrerá, pela primeira vez, na região centro-oeste, em Ponta Porã, no Mato Grosso do Sul, entre os dias 22 a 24 de setembro de 2010. Ponta Porã localiza-se em um território de fronteira entre Brasil e Paraguai, desenvolve ações de qualidade na área de Defesa Civil, atua na prevenção de desastres e colabora para uma cultura de redução de riscos. O VII Fórum Nacional de Defesa Civil tem a finalidade de fomentar ações locais de Defesa Civil. Possibilita a troca de experiências e oferece um espaço público para o debate inter e multidisciplinar em Defesa Civil com ênfase nas ações locais, estimulando os municípios para a redução de riscos de desastres. Fazem parte da programação do VII Fórum palestras com o tema "Defesa Civil nas escolas", discussões sobre proteção das cidades e segurança das populações fronteiriças, e articulação das diretrizes aprovadas na Conferência com foco nos municípios.

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## British Virgin Islands (in English)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

**Means of Verification:**

- \* Yes: Multi-hazard risk assessment

- \* 100 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

Disaster and Environmental Risk Management Policies are being integrated into development plans at the national level through the incorporation of the hazard mitigation requirements within the National Planning Act No. 15 2004 Regulations. Regulations are currently being drafted to support the requirements of the Planning Act. The Act requires that certain developments undergo Environmental Impact Assessment (EIA). The methods to undertake a Hazard Vulnerability and Risk Assessment have been incorporated into the requirements for the EIA. Development within designated hazardous areas are required to complete a Hazard Assessment. The HVA was updated earlier in 2010 to include erosion and drainage concerns. Further efforts will be made to integrate HVAs into the EIA process.

A Multi-Hazard Atlas is being developed in conjunction with the Town and Country Planning Department that will be compatible with the National Physical Development Plan. Data is being added to the National GIS database.

**Context & Constraints:**

Local capacity to conduct hazard assessments are lacking in the private and public sectors. There is a need for the revision of the Building Ordinance and Regulations.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

- \* Yes: Disaster loss database
- \* Yes: Reports generated and used in planning

**Description:**

The Comprehensive Disaster Management (CDM) Policy and CDM Strategy and Programming Framework 2009-2013 was approved by Cabinet and is being implemented by DDM. An Information Management System (IMS) was developed to monitor, evaluate and report on the CDM Strategy and Policy. The Monitoring, Evaluation and Reporting System provides an innovative approach to improving the delivery of information, products and services related to the areas of disaster preparedness, mitigation, response and

recovery. The IMS also allows for the preparation of reports for submission to Cabinet, to CDEMA and other local, regional and international entities. This database is a one of a kind application which is expected to be replicated in the region.

The DDM disseminates information through its website, monthly radio and television programs and an early warning system. Furthermore, continual monitoring of weather conditions and seismic activity is provided through acquired weather monitoring devices and through standing agreements with the Puerto Rico Seismic Network and the Strong Motion Sensor Programme at the University of Puerto Rico, Mayaguez.

**Context & Constraints:**

There is a need to complete the Hazard Atlas and it is expected that this will be achieved through the current R3i Project. Once completed, there will be further need to find mechanisms for incorporating the data and ensuring that it is widely used within the various sectors. The Atlas is expected to provide a mechanism for archived data that will be presented in a format that can be disseminated and monitored over time.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

**Description:**

An early warning system is in place to warn the public of impending dangers as required by the Disaster Management Act. The system consists of state of the art technology managed by technically trained personnel and supported by the media through MOUs. The DDM maintains and operates an Emergency Telecommunications Network consisting of 70 stations located throughout the Territory. The NEOC is equipped with commercial and amateur emergency communication systems. Satellite phones are located on each island in the event of network failure. Agreements are in place with the USVI in this regard. As there is no local Meteorological Office, the DDM contracts weather monitoring services and has established data collection capacity with the purchase and installation of automated weather stations. Seismic monitoring is provided through a formal relationship with the Puerto Rico Seismic Network and the Strong Motion Sensor Programme at the University of Puerto Rico, Mayaguez. A network of seismic stations and strong motion sensors are located throughout the Territory. Seven sirens are located throughout the territory.

The early warning system was recently upgraded at critical facilities like schools and police and fire stations. People who are unable to hear the sirens at these facilities will have access to an indoor unit that gives a warning tone and instructions issued by the DDM. Installation and training is ongoing. There are plans to encourage the private sector to purchase these units.

Four radio stations and four television stations are equipped to transmit emergency broadcasts from the DDM. Recently, a new Amateur VHF Repeater was installed. This repeater system has enhanced the ability of local HAMs to communicate with each other and surrounding Caribbean islands on the VHF Net. Installation of the VHF Community repeater provides basic communications for Government agencies and NGOs who require communications.

**Context & Constraints:**

There is a need for procedures/legislation to mandate radio and television stations to provide early warning and public notification. This matter is currently being addressed by the TRC and will also include cellular telephone service providers who have capabilities to provide public notification through the use of SMS and cell broadcasting. There is a need for continuous training and upgrading of equipment and such activities require funding on a continuous basis. Funding provided to the DDM have to be shared across programme areas and as such, funding upgrades and technical training have to be sought externally on many occasions because of the extent of the funding requirements.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

**Description:**

The Regional CDM Strategy and Results Framework has now been in existence since 2001. After 5 years, (during the later half of 2006 to the first quarter of 2007), CDEMA elaborated a revised and enhanced CDM Strategy and Framework for the Caribbean.

The VI CDM Strategy was developed to be aligned with the CDM Framework. There is growing consensus among development partners and financial institutions on the need to harmonize and coordinate CDM programming in the Caribbean, and stakeholders have agreed to use the CDM framework as a key tool in this harmonization and coordination process. The CDM Framework effectively acts as the harmonization tool for a regional "Programme Based Approach" (PBA) for CDM programming in the region.

Aligning the VI CDM Strategy to the Regional CDM Strategy has the dual benefit of being well coordinated with regional programming thrusts and being programmatically linked to critical aspects of the main window through which significant funding for CDM will emerge in the upcoming period. In this context, the VI CDM Programming Framework was developed to be a PBA for CDM in VI.

The VI is an active member of the Caribbean Community and will continue to operate under the umbrella of the regional CDM framework headed by the Caribbean Disaster Emergency Management Agency (CDEMA). Regional collaboration and the integration of key Disaster Management issues result in value added through synergies and collaborative coordination and a more efficient and effective national capability.

As a result of the close proximity of the US and British Virgin Islands, both governments have established MOUs and cooperative agreements in many areas including disaster management. Additionally, a plan exists that details the disaster management areas of cooperation. Annual meetings of the VI Council is held and the topic of disaster management has always been given priority.

**Context & Constraints:**

No constraints have been identified.

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## Canada (in English)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

No

**Means of Verification:**

- \* No: Multi-hazard risk assessment
- \* N/A % of schools and hospitals assessed
- \* N/A schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

An All-Hazards Risk Assessment Framework and associated tools are under development and will complement future editions of the Government of Canada's Emergency Management Planning Guide. The Emergency Management Act, Federal Policy for Emergency Management and An Emergency Management Framework for Canada requires all federal institutions of the Government of Canada to identify risks and develop appropriate plans to address these risks.

**Context & Constraints:**

Provincial and territorial governments, as well as municipal governments across Canada are responsible for the development and implementation of their own risk assessment processes, including the identification of risks and developing appropriate plans.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

\* Yes: Disaster loss database

\* No: Reports generated and used in planning

**Description:**

Public Safety Canada maintains the Canadian Disaster Database (CDD), a repository of historical information on disasters which have directly affected Canadians, at home and abroad, since 1900. It contains detailed disaster information on over 900 disasters, mostly triggered by natural hazards, but also containing events caused by technological hazards or conflict (not including war).

This data is informed by multiple agencies and provides a publicly accessible source of information on losses incurred as a result of disasters in Canada.

A geospatial mapping component, which permits users to define their search of the CDD by using a spatially-defined area, allowing queries at any scale for better analysis of regional trends without regard to political boundaries, was developed and launched in May 2011.

In the event of a disaster or emergency impacting health, the Health Portfolio has extensive surveillance systems and networks that operate in accordance with a comprehensive plan for surveillance and monitoring within the Health Portfolio's Emergency Response Plan.

Indian and Northern Affairs Canada (INAC) has also begun tracking the number and types of emergencies that impact First Nations communities on-reserve. As more and more data is collected, the Department will be able to use these statistics to further enhance emergency mitigation policy.

**Context & Constraints:**

Lessons learned and knowledge generated from evidence-based and qualitative information is used to develop improved practices, which are shared widely. After emergencies or disasters occur, a systematic approach is used to learn lessons from the experience, increase effectiveness and improve emergency management practices and processes. Recovery from a disaster may be completed by documenting and internalizing lessons learned. Continuous improvement, including incremental and transformational change, is undertaken systemically as an integral part of emergency management functions and practices at all levels, as appropriate, to minimize the recurrence of problems.

## Priority 2: Core indicator 3

*Early warning systems are in place for all major hazards, with outreach to communities.*

### Level of Progress achieved:

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### Do risk prone communities receive timely and understandable warnings of impending hazard events?

Yes

### Means of Verification:

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

### Description:

Industry Canada provides advice and assistance to federal departments and agencies on the telecommunications requirements of their emergency response functions. Industry Canada also advises provinces/territories and municipalities on emergency telecommunications and related warning systems, and private and public telecommunications undertakings on mitigating the disruptive effects of emergencies on domestic and external telecommunications.

IC manages telecommunications priority services, such as the \*272 Wireless Priority Service to improve the ability of executive leadership, public safety officials, emergency preparedness personnel, and officials with continuity-of-government responsibilities to communicate during emergencies, and for disaster recovery.

Public Safety Canada is working with federal partners, the provinces and territories and the private sector to develop a national public alerting system that will warn Canadians of imminent or unfolding threats to life. The system will initially focus on radio and television but could eventually be expanded to include wireless and internet.

Environment Canada's Meteorological Service maintains a 24-hour weather watch and warning system to alert the public and mariners to impending severe weather and environmental hazards, including ice and air quality.

Environment Canada is working with Public Safety Canada to develop criteria to identify significant events during flooding and extreme rainfall return periods. Real-time access to water level and flow data is provided by the Meteorological Service of Canada Water Survey and its provincial partners to provincial and municipal authorities. Flood risk area designations from a previous flood risk mapping Program contribute towards reducing flood damages and risks to the public.

Internationally, Canada has supported the Indian Ocean Consortium, an initiative of the International Strategy for Disaster Reduction (ISDR) System, to help Tsunami-affected countries strengthen their planning and capacity for tsunami early warning and response systems.

### Context & Constraints:

FPT governments aim to be as open as possible about the work each of these does in emergency management. Clear communications by appropriate authorities are a critical and continuous process before, during and after an emergency. Prior to an emergency, communication objectives focus on public education concerning emergency management to enhance awareness of hazards, risks and vulnerabilities; strengthen prevention, mitigation and preparedness measures; and provide information on all aspects of emergency management. Public alerting communicates warning messages that a disaster is imminent. Communications during and directly after a disaster explains and guides immediate response actions to minimize impacts and protect safety. These communications are instructive on the requirements for short, medium and long-term recovery.

## **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### **Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

### **Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

### **Description:**

Canada's regional and sub-regional participation takes place in a whole-of-government context, where the Departments of Foreign Affairs and International Trade Canada, the Canadian International Development Agency (CIDA), Public Safety Canada, Health Canada, Natural Resources Canada (NRCAN), Fisheries and Oceans all take part in multilateral fora to advance regional and national capacity building, sharing information, and contributing actively to practical means and methods of all-hazards risk reduction, mainly through UN agencies, the Organization of American States (OAS) and NATO. For example:

CIDA supports the UNDP's Bureau for Crisis Prevention and Recovery to mainstream DRR into its poverty reduction, governance and environment files.

NRCAN builds capacity in the UNESCO International Consortium on Landslides to strengthen Andean geo-science agencies in hazard assessment.

The Health Portfolio is developing a comprehensive risk assessment in collaboration with regional counterparts, reconciling hazard-specific risks with region-specific risks.

The Department of Fisheries and Oceans plays a key role in the Intergovernmental Oceanographic Commission's Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System.

Public Safety Canada supports building capacity in the APEC region to mitigate, prepare for and respond appropriately to emergencies and natural disasters.

Canada helped the OAS to create the Inter-American Network for Disaster Mitigation and also supported the ISDR Secretariat's 2009 Regional Platform for Disaster Risk Reduction in the Americas, to promote regional DRR in this hemisphere.

Canada provides advisors to the International Civil Aviation Organization's (ICAO) Cooperative Arrangement for the Prevention of the Spread of Communicable Diseases through Air Travel (CAPSCA) to assist preparation against communicable disease events.

The strong Canada-US relationship is leveraged through the International Joint Commission, and other mechanisms involving States, Provinces and Territories, such as the Emergency Preparedness Consultative Committee for Transportation.

**Context & Constraints:**

The Government of Canada supports a range of DRR, preparedness, response and recovery activities aimed at enhancing capacity for disaster management domestically, regionally and globally.

## **Cayman Islands** (in English)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

**Means of Verification:**

\* Yes: Multi-hazard risk assessment

> PRELIMINARY VULNERABILITY ASSESSMENT OF GRAND CAYMAN (2009) <http://www.caymanprepared.ky/pls/portal/docs/PAGE/NEMHOME/RESOURCES/PUBLICATIONS/PRELIMINARYVULNERABILITYASSESSMENTCAYMANISLANDS19062009.PDF>

\* 0 % of schools and hospitals assessed

\* 0 schools not safe from disasters (specify absolute number)

\* No: Gender disaggregated vulnerability and capacity assessments

\* No: Agreed national standards for multi hazard risk assessments

**Description:**

Preliminary Vulnerability Assessment of Grand Cayman, 1) To identify the various natural and man-made hazards that may affect the Cayman Islands; 2) To determine the level of exposure to natural hazards

events of the areas at risk; and 3) To identify the Physical vulnerability to the impact of hazards of the main critical facilities at Grand Cayman.

**Context & Constraints:**

The Assessment excludes Cayman Brac and Little Cayman

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

\* No: Disaster loss database

\* Yes: Reports generated and used in planning

**Description:**

Damage assessment conducted after each National Disaster Incident report created for every hazard impact  
National Hazard Management Executive reviews incident reports.  
Major recent impacts - Hurricanes Ivan and Paloma have resulted in the production of highly detailed reports produced in conjunction with ECLAC.  
Reports will be published on the website of Hazard Management Cayman Islands.

**Context & Constraints:**

More sustained effort is needed to identify the vulnerabilities exposed by each incident and to work to mitigate (and learn from) these identified vulnerabilities.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

\* Yes: Early warnings acted on effectively

\* Yes: Local level preparedness

\* Yes: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

**Description:**

Good Early Warning System for Hurricanes / Floods / Storms.

The Cayman Islands National Weather Service has an excellent relationship with the NHC in Florida and information about cyclone threats is effectively disseminated through media sources and Government website, email and messages.

Seismic devices have been installed but there is some post event delay in making the data useful because there is no resident seismologist.

A Doppler radar should be installed in the Cayman Islands in 2012.

**Context & Constraints:**

Additional systems need to be developed for other Hazards such as Tsunamis.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

\* Yes: Programmes and projects addressing trans-boundary issues

> R3I Project Document (2009) [http://www.preventionweb.net/files/13946\\_R3IProjectDocumentver6c.doc](http://www.preventionweb.net/files/13946_R3IProjectDocumentver6c.doc)  
[DOC ]

\* No: Regional and sub-regional strategies and frameworks

\* No: Regional or sub-regional monitoring and reporting mechanisms

\* No: Action plans addressing trans-boundary issues

**Description:**

Participation with Overseas Countries and Territories (OCTs) in the Caribbean region (Anguilla, Aruba, British Virgin Islands, Cayman Islands, Montserrat, Netherlands Antilles, Turks and Caicos Islands) in the R3i Project

Participation CARIFORUM/OCT/DOM/EU Task Force on Disaster Management (Preparedness)

**Context & Constraints:**

Geography of the Region

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**Chile** (in Spanish)

## Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

### Level of Progress achieved:

2 - Some progress, but without systematic policy and/ or institutional commitment

### Is there a national multi-hazard risk assessment available to inform planning and development decisions?

No

### Means of Verification:

- \* No: Multi-hazard risk assessment
- \* No Evaluado % of schools and hospitals assessed
- \* No Evaluado schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

### Description:

Existen diversas iniciativas que tienen por objetivo el análisis de las amenazas, por lo que varios organismos, incluido ONEMI, desarrollan esta tarea.

Los principales centros de monitoreo y alerta de eventos naturales extremos, en coordinación con ONEMI, son:

- El Servicio Sismológico de la Universidad de Chile que estudia las variables asociadas a sismos.
- Servicio Nacional de Geología y Minería que se ocupa de los riesgos asociados a la actividad volcánica.
- Servicio Hidrográfico y Oceanográfico de la Armada de Chile, organismo responsable del sistema nacional de alerta de tsunamis.
- Y la Dirección Meteorológica de Chile, que proporciona pronósticos de tiempo y clima.

(Fuente, Análisis de Riesgos de Chile, VI Plan de Acción Dipecho, 2010)

De acuerdo a los expertos de la ONU, quienes visitaron Chile en Octubre de este año, "hay información científica apropiada sobre las amenazas, en particular geológicas en instituciones técnicas y académicas, tanto a nivel nacional como en regiones". Esta información es de acceso público, sin embargo no está integrada a Sistemas de Información Territorial únicos, ni incluida en reportes unificados que permitan su difusión para el público general y para la investigación del mundo académico. La información en general es de difícil acceso y no está digitalizada.

### Context & Constraints:

Durante el año 2010 se reinstauró el Comité Científico Técnico de ONEMI, el que reúne a las instituciones encargadas del monitoreo de amenazas y convoca a especialistas del mundo académico, quienes son los responsables de analizar la información. Este Comité se reunió en cuatro ocasiones durante el año 2010, y su desafío para el futuro deberá ser poner a disposición de la comunidad científica los análisis de riesgos para que el mundo académico y científico pueda desarrollar investigaciones sobre la reducción del riesgo de desastres.

Las lecciones aprendidas del terremoto nos indican que no existen sistemas de monitoreos adecuados. Los sistemas mencionados no cuentan con tecnología de punta y no abarcan en algunos casos todo el territorio nacional. Además no existen protocolos actualizados de comunicación y traspaso de información

entre los diferentes organismos. El Gobierno y las administraciones actuales de estas instituciones han señalado la importancia de fortalecer estas relaciones, y se ha avanzado en la coordinación de las actividades para generar información unificada.

El desafío futuro consiste en poner a disposición del público general toda aquella información que permita de manera adecuada tomar las mejores decisiones frente a una amenaza, e incorporar a los sectores académicos y privados en el desarrollo de cuerpos comunes de conocimientos.

Durante el 2011 se han actualizado convenios y protocolos con el SHOA y el Servicio Sismológico Nacional y el proyecto de ley contempla la creación de una Red de Monitoreo Sísmico. Con los otros organismos técnicos también se están revisando protocolos y procedimientos. A través de alianzas estratégicas, como por ejemplo, con el gobierno de U.S.A se logró la adquisición de 10 estaciones de monitoreo sísmico y de la misma forma se están llevando a cabo instancias para mejorar el sistema. Para llegar a la población, se han desarrollado sistemas de alertamiento temprano a través de medios de comunicación masiva. Por ejemplo, se ha actualizado el proceso de traspaso de información con radioaficionados y se ha desarrollado un trabajo con las radios de difusión masiva. Algunos sectores, como por ejemplo Salud, están desarrollando junto a sus representantes regionales, la detección y catastro de posibles amenazas a sus establecimientos de carácter natural y antrópico.

## **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### **Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

### **Are disaster losses systematically reported, monitored and analysed?**

Yes

### **Means of Verification:**

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

### **Description:**

Según los expertos de la ONU en su visita a Chile "Aunque todas las instituciones reconocen tener buenas relaciones con ONEMI y ésta a su vez con las instituciones, no existen protocolos efectivos, canales de comunicación confiables y redundantes, lenguaje común así como tampoco la coordinación eficaz de intercambio de datos, productos e información"

Los sistemas de archivo de información y de registro no responden a criterios modernos de almacenaje. En general la información se guarda en papel o en bases de datos que no son homologadas entre los distintos organismos. No se posee sistemas automáticos de actualización de la información. El mundo privado posee diversos sistemas de información que no están incorporados en el trabajo de las instituciones públicas.

Los organismos no gubernamentales y organismos civiles no mantienen una comunicación adecuada con los organismos estatales en el traspaso de información, por lo que las iniciativas públicas y privadas generalmente no están coordinadas.

El organigrama del Sistema Nacional de Protección Civil no establece cadenas de mando claras, ni roles específicos para sus integrantes. El amplio número de organismos participantes en el Comité Nacional de Protección Civil hace inmanejable la convocatoria de estas, el desarrollo y manejo de información, y la generación de políticas eficientes de distribución de datos.

Las bases de datos de pérdidas generadas por desastres y los informes creados a partir de emergencias y utilizados en la planificación existen, pero aisladamente, y varían de acuerdo a la institución. No existe un

organismo que unifique la información y en general los sistemas son celosos de compartir los datos obtenidos. Por ejemplo, para el terremoto del 27 de Febrero se trabajó en conjunto desde las oficinas de ONEMI con el Sistema Nacional de Información Territorial (SNIT), sin embargo una vez acabada la emergencia no hubo mayor traspaso de información, situación que se mantiene hasta hoy.

### **Context & Constraints:**

Los modelos internacionales de manejo de emergencias y reducción del riesgo de desastres dan un espacio primordial al registro, traspaso e integración de la información. El Gobierno actual tiene contemplado iniciativas que tienen por objetivo el desarrollo de sistemas unificados de información territorial.

El proceso de fortalecimiento del Sistema Nacional de Protección Civil tiene contemplado el desarrollo de bases de datos modernas. A modo de ejemplo, el Ministerio de Defensa tiene a su cargo la tarea de desarrollar mapas de riesgo o, por otro lado, ONEMI cuenta con una Unidad de Gestión Territorial que tiene por objetivo el desarrollo de Sistemas de Información Territorial y ha establecido convenios de colaboración con distintos sectores para aunar la información. (Por ejemplo hay acuerdos con la Subsecretaría de Desarrollo Regional y el Ministerio de Obras Públicas)

A estas iniciativas no se integra todavía la participación de bases de información de organismos no gubernamentales o del mundo privado.

El desafío para el país consiste en desarrollar instancias, organismos, políticas y procesos que permitan la unificación del lenguaje y el traspaso de información.

En este aspecto, ONEMI ha elaborado propuestas de desarrollo de información y se encuentra en proceso de reformulación de archivos y digitalización de documentos, los que se pretenden poner a disposición de la comunidad a fin de alcanzar estándares internacionales. Además, desde el 2011 se está en un proceso de regulación del traspaso de información con los organismos técnicos como por ejemplo el SHOA, el SERNAGEOMIN y el Servicio Sismológico Nacional.

### **Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

#### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

#### **Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

#### **Means of Verification:**

\* Yes: Early warnings acted on effectively

\* Yes: Local level preparedness

\* Yes: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

#### **Description:**

"La información proveniente de algunas instituciones responsables del monitoreo llegan a ONEMI y al nivel de las autoridades de gobierno central, pero no es difundida oportunamente a nivel regional, provincial y comunal" (Informe visita ONU, Octubre 2010)

Los planes comunales, regionales y nacionales de emergencia carecen de indicaciones claras y concisas

sobre cuál es el rol de cada institución al momento de entregar información a la comunidad y al Sistema Nacional de Protección Civil, lo que dificulta la toma de decisiones adecuadas en tiempos de crisis. Los diferentes Planes Operativos de Emergencia no están estandarizados en su lenguaje y forma y cabe destacar que estos no son de dominio público lo que dificulta el traspaso de información a los integrantes del sistema.

Los criterios de alarma y alerta a nivel comunal no están estandarizados. Depende del gobierno local el desarrollo de sistemas propios de alarma a la población.

### **Context & Constraints:**

Producto de los errores en la coordinación y traspaso de la información observada durante el Terremoto y Tsunami del 27 de Febrero, se están revisando todos los sistemas de alertamiento nacional y está en desarrollo un proceso de fortalecimiento de la Red Sismológica Nacional, el cual se ha visto entrampado por dificultades legales y administrativas no contemplados en su génesis.

Iniciativas similares se han llevado a cabo para fortalecer los protocolos con otras instituciones a cargo del monitoreo. Además, la nueva conformación de los COE ha implicado la revisión de los protocolos de alertamiento nivel nacional, regional y comunal.

Internamente ONEMI ha fortalecido el alertamiento:

- Se ha avanzado en protocolos y convenios de difusión de la información logrando la participación y una mejor llegada a las comunidades. A modo de ejemplo en Octubre del 2010 se firmó un protocolo con ARCHI (Asociación de radioemisores de Chile) lo que permitirá, en momentos de emergencia, que las radioemisoras locales reciban información para ser emitida en sus sistemas. Por otra parte se está desarrollando con la Subsecretaría de Telecomunicaciones un importante proyecto que permitirá dar alarma frente a distintos eventos a través de sistemas de SMS y llegar a la población de manera expedita. También se firmó con radioaficionados un protocolo de colaboración y se incorporó a radioperadores de Cruz Roja al Sistema de ONEMI.
- Se han fortalecido los lazos con el Ejército y Red de Comunicaciones de Respaldo para fortalecer el sistema nacional de emergencia.
- Las oficinas regionales están funcionando las 24 horas del día, los 7 días de la semana. En caso de emergencias los COES se convocarán en las Oficinas Regionales de ONEMI o donde los Planes Regionales de Emergencia lo determinen.
- Se desarrolló una Red Satelital con todas las oficinas regionales.
- Está en desarrollo junto al Ministerio de Telecomunicaciones un Sistema de Alerta Temprana por medios de comunicación masivo como celulares y radios.
- Se ha reinstaurado y fortalecido la red troncal nacional con sistema HF.
- Se ha creado un sistema de Mega Simulacros. El Programa Atento Norte realizó en un periodo de seis meses la evacuación de la totalidad de ciudades y localidades costeras del Norte, evacuando a más de 260 mil personas. En estos simulacros se fortalecieron los COE regionales y se revisaron los protocolos de alerta nacional. Para el 2011 están planificados 15 Mega Simulacros (Uno por región) donde se seguirá aprovechando de revisar los sistemas de alertamiento.

### **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

### **Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Does your country participate in regional or sub-regional DRR programmes or projects?**

No

### **Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues
- \* No: Regional and sub-regional strategies and frameworks
- \* No: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

**Description:**

Actualmente se ha realizado una apertura del Sistema Nacional, y en particular de ONEMI, hacia la comunidad internacional con el objetivo de lograr alianzas a este nivel. El mes de Octubre tuvo lugar una visita de expertos de la Estrategia Internacional de Reducción del Riesgo de Desastres, ocasión en que se revisó el estado de avance del Marco de Acción de Hyogo.

Desde ONEMI se han restablecido relaciones en APEC con el Emergency Preparedness Group, alianzas estratégicas con FEMA, CAL-EMA y JICA para la cooperación en temas generales de preparación, respuesta y reconstrucción. Estas alianzas han permitido el traspaso de buenas prácticas, la capacitación de funcionarios de ONEMI en modelos internacionales de RRD, la visita de expertos de estas instituciones para la revisión de los procesos internos o la capacitación en nuevos modelos, la visita de funcionarios ONEMI a centros internacionales de manejo de emergencias para la observación de modelos eficientes del manejo del riesgo, etc.

**Context & Constraints:**

El fortalecimiento de las relaciones internacionales está en desarrollo. Se tiene contemplado fortalecer la relación con otros países pero en este aspecto no se ha avanzado con la celeridad que se requiere.

ONEMI participó activamente en la reunión regional de EIRD y participará en la reunión mundial que se llevará a cabo en Ginebra. En estas ocasiones se presentará la oportunidad de fortalecer la relación con los países vecinos y la comunidad internacional en general. Se tiene el desafío de presentar las lecciones aprendidas del Terremoto y Tsunami del 27 de Febrero del 2010 además de aprender de las mejores prácticas internacionales.

En caso de emergencias, se está trabajando en la Red de Ayuda Humanitaria Internacional que pretende regular la coordinación del voluntariado a fin de saber las instituciones que existen, sus capacidades, recursos y mejorar los procedimientos de trabajo conjunto, además, se está elaborando un Manual de Cancillería que regule la recepción de Ayuda Humanitaria Internacional.

Por otro lado, ONEMI está capacitando a sus funcionarios a través de convenios internacionales como por ejemplo con JICA donde se han realizado pasantías para aprender del sistema japonés o en intercambios con Estados Unidos donde se ha ido a estudiar principalmente la realización de simulacros y sistemas de formación y capacitación en RRD. Por ejemplo, en Mayo del 2011 se participará activamente en el Mega Simulacro de evacuación de terremoto de Estados Unidos.

**Colombia** (in Spanish)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

No

**Means of Verification:**

- \* No: Multi-hazard risk assessment
- \* 18% % of schools and hospitals assessed
- \* 25% schools not safe from disasters (specify absolute number)
- \* Yes: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

En Colombia algunas instituciones de carácter técnico a nivel nacional como lo son IDEAM, INGEOMINAS, INVEMAR, han realizado esfuerzos para realizar evaluaciones sobre tipos de amenaza específico, sin que este ejercicio trascienda al paradigma de las evaluaciones de amenazas múltiples, entre las amenazas caracterizadas se pueden encontrar Amenaza Sísmica, Deslizamientos, Volcánica (Solo algunos Volcanes), Inundaciones, Tsumani, evaluación de escenarios de amenaza por Cambio Climático, debido a la escala en que se realizaron estos estudios los departamentos y municipios los toman como referencia.

También es importante mencionar que algunos municipios gracias al trabajo de las CARS han adelantado estudios rigurosos en la identificación y caracterización de escenarios de amenaza, entre este grupo se destacan los de Bogotá y Medellín los cuales pueden ser ejemplo de un análisis multicriterio y multiobjetivo, sin decir que se tenga una metodología estandarizada para la realización de los mismos análisis.

Otras experiencias individuales en la evaluación de los riesgos locales están, el Proyecto Glacio volcánico Cañón del Combeima en la ciudad de Ibagué, Departamento del Tolima, Volcán Nevado del Huila en el Departamento del Huila, Volcán Galeras en el Departamento de Huila, cerro volcán Machín en los Departamentos de Tolima, Quindío y Cundinamarca y Sistemas Comunitarios como el Proyecto Cambio Climático y desastres en la Guajira.

**Context & Constraints:**

Frente al tema de los retos es muy importante comenzar a estructurar y afianzar una sola metodología de evaluación de escenarios de riesgos y vulnerabilidad con aplicación a nivel nacional, con aplicaciones municipales, departamentales y regionales, por parte de las instituciones de investigación que hacen parte del SNPAD, fijando escalas detalladas de cartografía.

Es trascendental generar una política de información para que a través del liderazgo de INGEOMINAS, IDEAM, y el IGAC, entre otras para la generación de mapas de amenaza a diversas escalas, las cuales coadyuven a los procesos de planificación territorial a escala municipal lo anterior debe estar acompañado de una estrategia financiera la cual convierta en viable la implementación de dicha política.

Las CARs deben fijar su estructura ecológica principal y los determinantes ambientales para su jurisdicción como mecanismo para la generación de información técnica de amenazas que contribuyan a nivel municipal y regional.

Es importante comenzar a liderar procesos de capacitación y fortalecimiento técnico en las áreas de

amenazas, vulnerabilidad y riesgo.

## **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### **Are disaster losses systematically reported, monitored and analysed?**

Yes

### **Means of Verification:**

\* Yes: Disaster loss database

\* No: Reports generated and used in planning

### **Description:**

Frente al tema de recopilación y de diseminación de datos los desarrollos son incipientes, en la actualidad la Dirección de Gestión del Riesgo –DGR- cuenta con el sistema de captura denominado “Registro de Emergencia y Calamidades”, el cual en tiempo real, una vez reportada la información por los CREPADs y CLOPADs, esta se recopila y es la base de actuación tanto para la DGR como para el Fondo Nacional de Calamidades –FNC- en la tematica de atención de emergencias y calamidades. Por otra parte, esta información solo es subsidiaria para algunos procesos de planificación, debido a que sus proceso de diseminación no es el más eficaz y apropiado para el acceso de múltiples usuarios.

De forma complementaria algunas entidades integrantes del SNPAD desde su carácter misional deben y administran cada una su sistema de información, como p.e Instituto Geográfico Agustín Codazzi –IGAC-, INGEOMINAS, IDEAM, OSSO, algunas CARs, los cuales según el nivel de información su acceso puede presentar costos y restricciones según el tipo de usuario.

Sin embargo existen muchas debilidades en la estandarización, generación, procesamiento y análisis de la información a nivel nacional, regional y municipal, lo anterior como consecuencia de una muy baja apropiación de recursos financieros, técnicos y tecnológicos.

En conclusión no todos los sistemas están habilitados para seguir de cerca, archivar y diseminar datos correlacionados en especial aquellos correlacionados a la identificación de amenazas y vulnerabilidades.

### **Context & Constraints:**

La carencia de una política integral y definitiva que unifique criterios, metodologías y responsables para la generación de la información básica que coadyuve los procesos de planificación territorial para la toma de decisiones para el desarrollo.

Deficiencias y obsolescencia tecnológica que presentan algunos equipos de las instituciones encargadas de la generación y difusión de la información hacen que esta actividad presente demoras, mediana calidad y mínima capacidad para el intercambio o consulta de la información temática.

De igual forma algunas deficiencias institucionales especialmente desde la órbita técnica hacen que algunas instancias como los CREPADs y CLOPADs no cuenten con los recursos técnicos ni financieros para la generación de información para la toma de decisiones desde su que hacer, a si mismo a nivel regional (CARs), departamental y Nacional (DGR)

La inexistencia de canales apropiados para la difusión de la poca información que se genera en diferentes instancias para la toma de decisiones especialmente correlacionadas a la gestión del riesgo.

Frente a los retos, se han comenzado a generar estrategias para la producción y gestión de Información, en especial las correlacionadas a la estandarización de los parámetros que actualmente se manejan con los internacionales en pro de su implementación para la toma de decisiones.

De forma complementaria, se está trabajando en consolidar acciones y estrategias técnicas y financieras para realizar los cambios tecnológicos necesarios para optimizar los procesos de captura, procesamiento y difusión de los mismos para diferentes grupos objetivo.

Igualmente entre los retos prioritarios de la DGR esta el de la consolidación del Sistem de Información que en la actualidad emprendió un proceso de revisión y reingeniería para responder de forma eficiente y eficaz a las múltiples necesidades del país en materia de información para la gestión del riesgo.

## **Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### **Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

### **Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

### **Description:**

Efectivamente se cuentan con Sistemas de Alerta Temprana especialmente para amenazas correlacionadas para erupciones volcanes, ciclones tropicales, tsunamis, avalanchas e inundaciones, que parten del conocimiento y monitoreo de las entidades técnicas del Sistema Nacional para la Prevención y Atención de Desastres, pasan a los niveles de coordinación (DGR, CREPADs, CLOPADs) y las diferentes entidades encargadas de liderar la respuesta, para que con un trabajo mancomunado con las comunidades se difunda las mismas y estar preparados ante cualquier tipo de contingencia .

Un ejemplo son los mecanismos que se utilizan en tiempo real en la zona de influencia del Volcán Galeras. SAT (científico - comunitario); a nivel comunitario, lenguaje científico con entendimiento en el lenguaje local (p.e Bogota, SAT con mecanismos "a la mano" de la comunidad, megáfonos, etc.), ingentes esfuerzos se realizan para que llegue a todas las comunidades. Se toma en cuenta el conocimiento y experiencia de la comunidad, para su evaluación e inclusión a los SAT. En este orden de ideas es de destacar que el país ha implementado grandes avances en la instalación de redes hidrometeorológicas con comunicación satelital y de forma complementaria se han instalado y puesto en

operación redes hidrometeorológicas a nivel local operadas por la comunidad, así mismo se ha actualizado la red sísmica localizándola en puntos estratégicos del país.

Finalmente Colombia frente a los sistemas de Alerta Temprana continúa madurando con el mejoramiento de las redes de monitoreo y de los sistemas de comunicación y coordinación interinstitucional y comunitario.

**Context & Constraints:**

En la actualidad el país en cabeza de las instituciones responsables como lo son el IDEAM e INGEOMINAS, esta implementado una estrategia de cubrimiento y actualización tecnológica para potencializar el sistema de alerta temprana, sin embargo los costos de adquisición y administración de los equipos ha hecho que esta se vea retrasada.

Sin embargo frente a los retos que se han planteado se encuentran:

La DGR y las entidades operativas están estructurando un conjunto de estrategias y mecanismos para optimizar la difusión de dichas alertas y a su vez la respuesta a las mismas por parte de las instituciones como también de la comunidad.

Es de destacar que la DGR actualizó los protocolos de respuesta del alto gobierno ante un evento catastrófico, el cual ha contribuido a diseñar la estrategia para la preparación y entrenamiento de diversos simulacros del orden nacional y municipal.

Se están formulando programas y proyectos unificados a nivel nacional para llegar a los sectores comunitarios con enfoques y herramientas que orienten un verdadero proyecto de sistema de alerta temprana comunitario medibles ante las ocurrencias de los desastres y con posibilidades de diseminación para todas las regiones.

Se estan optimizando las acciones de los SAT para aumentar la capacidad de respuesta para garantizar las evacuaciones, para lo cual se estan identificacndo y en algunas regiones adecuando zonas seguras por parte de las administraciones para atender las evacuaciones.

Finalmente las instituciones técnicas como el INGEOMINAS, IDEAM e Invias entre otras, estan gestionado recursos para actualizar las redes, ampliar las coberturas, optimizar los canales de comunicación para la difusión de las SAT en tiempo real.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

\* No: Programmes and projects addressing trans-boundary issues

\* Yes: Regional and sub-regional strategies and frameworks

\* Yes: Regional or sub-regional monitoring and reporting mechanisms

\* No: Action plans addressing trans-boundary issues

**Description:**

Frente a las evaluaciones nacionales el país, viene participando en el Sistema Regional de Alerta Temprana por Tsunami en el Pacífico Sudeste, que busca promover la articulación y coordinación de acciones entre las autoridades responsables de los sistemas Nacionales de Detección y Alerta de Colombia, Chile, Ecuador y Perú, apoyados por la Comisión Permanente del Pacífico Sur CPPS y la Comisión Oceanográfica Intergubernamental (COI/UNESCO). Asimismo, comparte información con el PTWC, Sistema Internacional para Alerta de Tsunami del Pacífico.

De manera similar ocurre con el riesgo por ciclones tropicales / huracanes por parte del IDEAM, quien con el apoyo de servicios como el del Centro Nacional de Huracanes, contextualiza el riesgo para Colombia. El IDEAM forma parte del sistema de Vigilancia Meteorológico Mundial de la OMM, como también comparte toda la información a través de Comités regionales como el Comité de Huracanes, el Centro Internacional de Investigación del Fenómeno de El Niño –CIIFEN,

Lo anterior, ha contribuido a la estructuración de documentos estratégicos como el de “Plan Nacional de Gestión del Riesgo por Tsunami” .

Otras acciones correlacionadas son algunas evaluaciones de riesgos regionales y transfronterizos para la reducción del riesgo especialmente de amenazas climatológicas con base en información de redes a nivel Nacional e Internacional.

A nivel regional y municipal se cuentan con ejercicios de evaluación de regionales de amenaza como por ejemplo: “Estado Actual, Perspectivas y Prioridades para los Preparativos ante Desastres en Colombia. 2010”, y los Planes de Ordenamiento y Manejo de Cuencas” liderados por las Corporaciones Autonomas Regionales, los cuales han contribuido a realizar procesos de evaluación de amenazas desde una óptica regional y ha permitido a diferentes municipios contiguos a dichas cuencas tener información para su toma de decisiones de ordenamiento.

**Context & Constraints:**

Colombia está liderando procesos para generar y/o consolidar convenios internacionales para la producción y consecución de información avanzada bajo criterios estandarizados de diferentes tipos de eventos, e igual forma se ha avanzado en la migración de la información actual, buscando estandarizar esta a parámetros internacionales con lo cual se busca, a nivel internacional poder compartir toda la información que se genere.

Avanzar en el conocimiento e implementación con información adecuada los modelos probabilístico con el fin de mejorar los resultados de simulación y toma de decisiones en el territorio.

Frente a uno de los retos estructurales, el país es liderando procesos incipientes en el afianzamiento y cubrimiento de redes, instrumentos, equipos y tecnologías generadoras de información, como estrategia de soporte para los procesos de evaluación y posterior identificación de acciones y estrategias para reducir las vulnerabilidades de los territorios.

Continuar con la implementación de estrategias con visión regional en Centroamérica y Suramérica, para la consolidación de acciones de Alertas Tempranas hidrometeorológicas.

Dentro de las limitaciones recurrentes se encuentran las limitaciones, financieras y técnicas que se

presentan en los diversos niveles para liderar procesos contundentes para las evaluaciones nacionales, departamentales y municipales.

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## Costa Rica (in Spanish)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

#### Level of Progress achieved:

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

#### Is there a national multi-hazard risk assessment available to inform planning and development decisions?

Yes

#### Means of Verification:

\* No: Multi-hazard risk assessment

\* 30 % of schools and hospitals assessed

\* 50 schools not safe from disasters (specify absolute number)

\* No: Gender disaggregated vulnerability and capacity assessments

\* Yes: Agreed national standards for multi hazard risk assessments

#### Description:

Se ha aplicado la evaluación de "hospital seguro" en toda la infraestructura pública hospitalaria. Guía de Proyectos de inversión pública. Manuales para los estudios de impacto ambiental

#### Context & Constraints:

Los control de los procesos de construcción del gobierno se han mejorado, pero no así los del sector privado.

Los estudios en las escuelas están referidos a escuelas públicas y se trata de un dato pequeño en comparación al número de escuelas que deben ser valoradas. Además, la valoración solo considera la amenaza sísmica.

### Priority 2: Core indicator 2

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

#### Level of Progress achieved:

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

#### Are disaster losses systematically reported, monitored and analysed?

No

**Means of Verification:**

\* No: Disaster loss database

\* Yes: Reports generated and used in planning

**Description:**

Se elaboran informes de seguimiento a los eventos con datos de inversión pero el costeo de pérdidas no es sistemático ni obligado.

**Context & Constraints:**

La información sobre pérdida solo abarca los eventos que son decretados emergencia nacional, otros eventos carecen de estadística sobre el valor de la pérdida. Hay base de información para avanzar en este tema.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

\* No: Early warnings acted on effectively

\* Yes: Local level preparedness

\* Yes: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

**Description:**

El país cuenta con institutos de investigación que realizan el monitoreo de las amenazas, con una enorme capacidad técnica y científica. Los "sistemas de alerta temprana" se desarrollan para cuatro naturalezas de eventos: Lluvias intensas (suman los ciclones tropicales), eventos marino costeros, sismos, deslizamientos. El enfoque es de cuenca y se desarrollan como sistemas de respuesta local, es decir, comunal.

**Context & Constraints:**

El reporte se limita a iniciativas desarrolladas por la CNE.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional*

*cooperation on risk reduction.*

**Level of Progress achieved:**

5 - Comprehensive achievement with sustained commitment and capacities at all levels

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues
  - \* Yes: Regional and sub-regional strategies and frameworks
  - \* No: Regional or sub-regional monitoring and reporting mechanisms
  - \* Yes: Action plans addressing trans-boundary issues
- > Acta final de la reuni3n bilateral Costa Rica - Panam3; (2009)  
[http://www.preventionweb.net/files/14346\\_actafinaldelareuninbilateralcostari.pdf](http://www.preventionweb.net/files/14346_actafinaldelareuninbilateralcostari.pdf) [PDF ]

**Description:**

La iniciativa para el proyecto transfronterizo del R3o Sixaola, Costa Rica - Panam3.

**Context & Constraints:**

Costa Rica tiene dos fronteras. Con Nicaragua no se ha concretado iniciativas.

**Cuba** (in Spanish)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

**Means of Verification:**

- \* Yes: Multi-hazard risk assessment
- \* 100 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* Yes: Gender disaggregated vulnerability and capacity assessments

\* Yes: Agreed national standards for multi hazard risk assessments

**Description:**

Existen evaluaciones del riesgo de amenazas múltiples y se han evaluado todas las escuelas, hospitales, policlinicas y centros de salud y en aquellas que presentaron alguna vulnerabilidad se trabaja en su solución con la aplicación de medidas dirigidas a preservar la vida humana. Están definidas y establecidas las normas nacionales para la evaluación del riesgo de amenazas multiples, con la participación de todos los sectores claves.

A partir de los estudios de peligros realizados en el país, existen las bases de datos necesarias para efectuar el planeamiento de las nuevas inversiones a fin de disminuir los riesgos de desastres en las comunicacioens. Además el proceso de compatibilización de las nuevas inversiones contribuye a disminuir los riesgos de los territorios donde se desarrollarán nuevas obras.

**Context & Constraints:**

Las condiciones creadas por la Revolución Cubana, desde 1959, garantiza la preservación de valores tales como acceso universal a la cultura; salud pública, educación y seguridad social para todas las cubanas y cubanos. Las limitaciones que se presentan están localizadas en la escasez de financiamiento para el desarrollo integral y sostenible del país

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

**Description:**

La creación de los Centros de Gestión para la Reducción del Riesgo posibilitan, mediante los medios de Informática y de Comunicaciones, la creación de las bases de datos necesarias para monitorear las vulenrabilidades de cada territorio, lo cual permite tomar las decisiones más acertadas y calcular con mayor precisión las pérdidas que pueden haber ocurrido ante un desastre.

**Context & Constraints:**

Las condiciones creadas por la Revolución Cubana, desde 1959, garantiza la preservación de valores tales como acceso universal a la cultura; salud pública, educación y seguridad social para todas las cubanas y cubanos. Las limitaciones que se presentan están localizadas en la escasez de financiamiento para el desarrollo integral y sostenible del país

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

5 - Comprehensive achievement with sustained commitment and capacities at all levels

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

\* Yes: Early warnings acted on effectively

\* Yes: Local level preparedness

\* Yes: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

**Description:**

El Sistema de Comunicaciones está diseñado para que al menos exista una vía de comunicación con aquellas comunidades más alejadas. Las alertas tempranas que se emiten pueden ser recibidas por los medios de infocomunicaciones que se destinan para estos lugares.

La creación de telecentros y emisoras de radios municipales y la instalación de receptores satelitales de TV, en comunidades ubicadas en zonas de silencio, permite diseminar la información a la población en las comunidades de difícil acceso.

La divulgación de las medidas de protección se realiza a través de grupos informativos organizados (integrados por las organizaciones políticas y sociales) hasta nivel local, propiciando la alerta temprana ante cualquier peligro, utilizando diversos medios: boletines, autoparlantes, radio aficionados y otros y la información persona a persona .

Los telecentros, (canales televisivos provinciales) emisoras de radio y órganos de prensa cuentan con programas divulgativos que comprenden temas de prevención y preparación para la población y en la respuesta realizan programaciones especiales para mantener orientada a las comunidades de cómo actuar en cada situación.

**Context & Constraints:**

Las condiciones creadas por la Revolución Cubana, desde 1959, garantiza la preservación de valores tales como acceso universal a la cultura; salud pública, educación y seguridad social para todas las cubanas y cubanos. Las limitaciones que se presentan están localizadas en la escasez de financiamiento para el desarrollo integral y sostenible del país

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

\* Yes: Programmes and projects addressing trans-boundary issues

\* Yes: Regional and sub-regional strategies and frameworks

\* Yes: Regional or sub-regional monitoring and reporting mechanisms

\* Yes: Action plans addressing trans-boundary issues

### **Description:**

Además de la participación en proyectos en interés de la reducción de riesgos de origen natural, se participa en aquellos relacionados con la Red del Organismo Internacional de Energía Atómica en interés de la Asistencia para la Respuesta a eventos (IAEA Response Asístanse Network, RANET) en caso de emergencia nuclear o radiológica; sobre la desclasificación y descarga de materiales radiactivos; de protección radiológica ante la posibilidades de ocurrencia de accidentes radiológicos en nuestro país y transfronterizos; y de prevención de accidentes en la práctica de la radioterapia, todos como parte de proyectos de cooperación regionales y del cumplimiento del Acuerdo Regional de Cooperación para América Latina (ARCAL).

Cuba participa en el Proyecto “Iniciativa Caribeña de Manejo de Riesgos” (CRMI, por sus siglas en inglés), que tiene como objetivo la creación de capacidades en la región del Caribe con el fin de enfrentar adecuadamente la creciente ocurrencia de peligros naturales y ambientales, así como de enfatizar el concepto de adaptación al cambio climático y vulnerabilidad social. A través de este Proyecto Cuba ha ofrecido sus experiencias y buenos resultados en la creación y desarrollo de los Centros Gestión para la Reducción de Riesgos, que pudiera ser replicada en otros países caribeños.

Además, Cuba es miembro fundador de la Asociación de Estados Caribeños (AEC) e integra su Comité Especial para Desastres. También forma parte de la .Asociación Iberoamericana de Organismos Gubernamentales de Defensa y Protección Civil.

### **Context & Constraints:**

Las condiciones creadas por la Revolución Cubana, desde 1959, garantiza la preservación de valores tales como acceso universal a la cultura; salud pública, educación y seguridad social para todas las cubanas y cubanos. Las limitaciones que se presentan están localizadas en la escasez de financiamiento para el desarrollo integral y sostenible del país

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## **Dominican Republic** (in Spanish)

### **Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### **Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

### **Means of Verification:**

\* Yes: Multi-hazard risk assessment

- \* 30% % of schools and hospitals assessed
- \* 3,000 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

Hemos experimentado un avance significativo en la identificación de las amenazas, p.ej. desarrollo de estudios de las diferentes amenazas, en particular las Geológicas (sísmicas, procesos activos...etc) e hidrometeorológicas.

- Se han realizado evaluaciones de riesgos a nivel local, tanto de amenazas como vulnerabilidades en los diferentes municipios del país

**Context & Constraints:**

- Hacer énfasis en que la información generada, se transmita de manera adecuada y oportuna para que pueda ser utilizada para la planificación del desarrollo, haciendo que su aplicación resulte útil, desde el punto de vista de la Gestión Integral del Riesgo.

- Se requiere completar análisis de amenazas hidrometeorológicas

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

- \* No: Disaster loss database
- \* No: Reports generated and used in planning

**Description:**

- Existen evaluaciones de daños de los diferentes eventos importantes ocurridos.  
 - Se elaboran informes técnicos de las pérdidas ocasionadas por esos desastres.

**Context & Constraints:**

- Conformar una base de datos, con eje focal en un Sistema Integrado de Información, que registre los datos de daños y pérdidas evaluadas post eventos, incluyendo los micro desastres, de forma que contribuyan a la obtención de información ágil y precisa.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

\* No: Early warnings acted on effectively

\* Yes: Local level preparedness

\* Yes: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

**Description:**

- Las alertas de eventos hidrometeorológicos han experimentado un avance considerable y un nivel de credibilidad muy bueno por parte de la ciudadanía y los niveles de manejo de los protocolos de alerta, por parte del Centro de Operaciones de Emergencias.

- Se ha mejorado la participación de los medios de comunicación en la difusión de la información, respetando los estándares de alertas y la discrecionalidad de información.

- La alerta contra tsunamis, de mediana y lejana distancia, tiene posibilidades de ser instalado un sistema de monitoréo con servicio permanente, teniendo como eje focal la Oficina Nacional de Meteorología.

**Context & Constraints:**

- Las alertas de orden geológicas, como la sísmica, no han tenido desarrollo en el contexto mundial, y por tanto tampoco en lo local.

- Los medios de comunicación, sin ningún conocimiento técnico ni la asesoría adecuada, reciben informaciones de agencias internacionales y la transfieren a la población de forma alarmante y espectacular. Esta practiva crea desasociago y temor. Es correcto regular el uso de estas informaciones para que sean transmitidas y digeridas por las instituciones técnicas del área (Instituto Sismológico, Servicio Geológico Nacional y el COE) que sirva para edificar a la poblacion respecto a los niveles de alerta.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

**Description:**

- Existe una cooperación bilateral entre Haití y República Dominicana la que se ha incrementado luego del terremoto de Haití, 12 de Enero del 2010, motivando un gran interés por importantizar la evaluación de niveles de riesgos.
- El país forma parte de algunos organismos de integración regional y participa en las actividades que se desarrollan sobre el tema de gestión de riesgos.

**Context & Constraints:**

- Debe fortalecerse los sistemas de instrumentación, seguimiento y control, bilateralmente, de forma que sirvan para unificar los esfuerzos y facilitar la coordinación entre ambas naciones.
- Elaborar planes fronterizos de gestión de riesgos para trabajar el tema desde una perspectiva de isla.

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**Ecuador** (in Spanish)**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

**Means of Verification:**

- \* Yes: Multi-hazard risk assessment
- \* 30 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* Yes: Gender disaggregated vulnerability and capacity assessments
- \* Yes: Agreed national standards for multi hazard risk assessments

**Description:**

Nivel de avance 3

El Ministerio de Educación tiene 8000 escuelas evaluadas corresponde al 40% del total según la Subsecretaría de Educación del Litoral; Se han preparado 2 guías metodológicas para manuales de emergencias: guía comunitaria y guía institucional.

SENPLADES ha preparado la guía metodológica para Planes de Desarrollo y Ordenamiento Territorial (PDOT) que incluye la variable de riesgo y cambio climático. Esta guía sirve para actualizar los PDOT de los cantones del proyecto.

Se ha preparado el capítulo de señalización de riesgos, que se ha incluido en la 1era revisión del Reglamento Nacional de Señalización Vertical (INEN RTE 4: Reglamento técnico de señalización vial, parte 1: señalización vertical);

**Context & Constraints:**

Desarrollar guías metodológicas para el análisis de riesgo amenaza y vulnerabilidad, así como los lineamientos para la elaboración de planes locales de gestión de riesgos incorporados a los planes de desarrollo local.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

**Description:**

Nivel de avance 4

La Secretaría Nacional de Gestión de Riesgos está implementando el sistema nacional de información de gestión de riesgos, con módulos de emergencias, voluntariado, logística, formación ciudadana, análisis inicial de riesgo local, capacidades, telecomunicaciones, seguimiento de la gestión, documental, SIG.

Así mismo se está trabajando en el Comité Nacional de Geoinformática el mismo que ha emitido las "Políticas nacionales de Geoinformación", y la norma DATOS GEOGRAFICOS MARCO CLASIFICACION, la Norma clasifica los Datos Geográficos Marco y establece los principios de orden y jerarquía, mediante un sistema de clasificación acorde a la realidad nacional, que sea utilizado por las Instituciones Productoras de Información que integran el Sistema Nacional de Información SNI, en el Marco de la Infraestructura Ecuatoriana de Datos Geoespaciales.

**Context & Constraints:**

Implementación y puesta en marcha del Sistema Nacional de Información para la Gestión de Riesgos en el país

### **Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

#### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

#### **Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

#### **Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

#### **Description:**

Nivel de logro 4

Tenemos monitoreado los volcanes Cotopaxi y Tungurahua que estan en proceso de erupción con sus respectivos equipos en Baños, Pelileo y Guano, Rumiñahui, Latacunga, Salcedo, Penipe, se contrató a 2 personas para fortalecer las Unidades de Gestión de Riesgos Cantonales (Un encargado de Sala de Situación, un Facilitador); Se han equipado las salas de situación de Baños, Pelileo y Guano (2 computadoras, impresora, GPS, proyector, generador de electricidad, radios).

En el 2008-2009 se han realizado los mapas de riesgos de los cantones Baños, Pelileo, Guano, Penipe, Cevallos, Tisaleo y Quero, se han actualizado los mapas de evacuación e instalado señalización de riesgo en Baños y Pelileo; asi mismo los protocolos y flujos de información en casos de lahares y otros eventos volcánicos

Se han ejecutado simulacros de evacuación en Baños, uso de señaletica por la población el 28 de agosto de 2010. Se ha estandarizado la señalización de riesgo a nivel nacional RTE INEN 004 señalización vial parte 1 señalización vertical capítulo 9: Señalización de Riesgo.

Se esta trabajando un programa de capacitación para preparar a la población en caso de un tsunami en la Costa Ecuatoriana y preparación a los comunicadores para información de que hacer y cuales son las zonas seguras.

#### **Context & Constraints:**

Contar con sistema de monitoreo y alertas tempranas de todos las amenazas que tiene el país, así como difusión de las alertas tempranas y alarmas en todos los casos y que toda la población expuesta este preparada.

## Priority 2: Core indicator 4

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

### Level of Progress achieved:

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### Does your country participate in regional or sub-regional DRR programmes or projects?

Yes

### Means of Verification:

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

### Description:

El Ecuador es miembro del Comité andino para la prevención y atención de desastres CAPRADE, el mismo que tiene su estructura y cumple sus actividades de acuerdo con el Plan Operativo y su Estrategia Andina.

Asi mismo es presidente del grupo de apoyo de la Estrategia Internacional para la Reducción de Riesgos.

Ademas es miembro de la Unión de Naciones Suramericanas, que busca el desarrollo de un espacio integrado en lo político, social, cultural, económico, financiero, ambiental y en la infraestructura. Este nuevo modelo de integración incluirá todos los logros y lo avanzado por los procesos del Mercosur y la Comunidad Andina, de la cual la Secretaria Nacional de Gestión de Riesgos ejerce la Secretaría Técnica.

### Context & Constraints:

Contar con la Ley o Código de Gestión de Riesgos del país, su reglamento y la institucionalización del Sistema Nacional Descentralizado de gestión de riesgos.

Mecanismos de difusión y sensibilización funcionando de acuerdo con la vulnerabilidad local y una población resiliente.

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## El Salvador (in Spanish)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

### Level of Progress achieved:

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### Is there a national multi-hazard risk assessment available to inform planning and development

## decisions?

No

### Means of Verification:

- \* No: Multi-hazard risk assessment
- \* 13.33% % of schools and hospitals assessed
- \* 837 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

### Description:

En los últimos años, diferentes organismos gubernamentales y no gubernamentales, así como algunas agencias de cooperación, han realizado estudios de evaluación de riesgos multi-amenazas en municipios y comunidades, mas no se cuenta con una sistematización de toda la información recabada en dichos estudios.

El Ministerio de salud desarrolla evaluaciones de sus establecimientos que permiten determinar amenazas y vulnerabilidades para ejecutar intervenciones que requieren gestionar inversión. Actualmente se han evaluado cuatro hospitales y cuatro Unidades de Salud.

Además, una de las funciones de la Dirección de Adaptación al Cambio Climático y Gestión Estratégica del Riesgo (DACGER) al interior del Ministerio de Obras Públicas, será la de la evaluación del riesgo multiamenaza a la infraestructura pública.

### Context & Constraints:

Si bien algunos organismos gubernamentales y no gubernamentales han elaborado evaluaciones de riesgo e incorporado propuestas de solución, no todas han sido tomadas en cuenta por los sectores políticos, económicos y sociales.

## Priority 2: Core indicator 2

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### Level of Progress achieved:

2 - Some progress, but without systematic policy and/ or institutional commitment

## Are disaster losses systematically reported, monitored and analysed?

No

### Means of Verification:

- \* No: Disaster loss database
- \* No: Reports generated and used in planning

### Description:

En los últimos eventos adversos sufridos en el país y a petición del Gobierno de El Salvador, a través de la

Secretaría Técnica de la Presidencia, se ha solicitado una misión de evaluación conjunta de daños y pérdidas de la CEPAL, lográndose conformar un equipo de expertos y técnicos tanto nacionales como internacionales, quienes han logrado elaborar sus informes o evaluaciones conjuntas de daños y pérdidas post desastres.

El Ministerio de Obras Públicas, como coordinador de la Comisión Técnica Sectorial de Infraestructura y Servicios Básicos, lleva un registro de datos de pérdidas generadas por desastres

**Context & Constraints:**

A pesar que el Plan Nacional define la organización y sistema de control de la respuesta que el Sistema Nacional adoptara en situaciones de emergencia, esto no se cumple debido a la falta de instrumentos administrativos, que faciliten la sistematización de la información.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

\* Yes: Early warnings acted on effectively

\* Yes: Local level preparedness

\* No: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

**Description:**

El país ha fortalecido los sistemas de monitoreo de fenómenos de origen hidrometeorológicos, geológicos, hidrológicos y oceanográficos de la Dirección General del Servicio Nacional de Estudios Territoriales, entidad responsable de los pronósticos y monitoreo de eventos que puedan afectar al país.

La Dirección General de Protección Civil, como ente responsable de la declaratoria de los diferentes estados de alerta, cumple con el mandato establecido, así mismo mantiene mecanismos de difusión por los diferentes medios de comunicación social, además se tiene adelantado un acuerdo de cooperación con la Asociación Salvadoreña de Radiodifusores (ASDER).

**Context & Constraints:**

Escasez de recurso humano calificado y limitada disponibilidad de recursos financieros no permite implementar sistema de alerta temprana a nivel local.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

\* Yes: Programmes and projects addressing trans-boundary issues

\* Yes: Regional and sub-regional strategies and frameworks

\* Yes: Regional or sub-regional monitoring and reporting mechanisms

\* Yes: Action plans addressing trans-boundary issues

**Description:**

El país, tal y como lo señala la Plataforma Nacional, ha incrementado los esfuerzos de coordinación regional y transfronterizos para la reducción del riesgo, lo cual permite establecer prioridades y lineamientos de cooperación en ese ámbito.

El Salvador participa activamente en varios programas o proyectos regionales encaminados a la Reducción de Riesgos a Desastres, entre ellos podemos mencionar: El RESIS II "Reducción del Riesgo Sísmico en El Salvador, Guatemala y Nicaragua con cooperación Regional de Panamá, Costa Rica y Honduras.

Así mismo se participa en el "Fortalecimiento de las Capacidades en el manejo de los riesgos causados por deslaves en Centroamérica" RECLAIMM, así como en los programas de PTWC (Centro de alerta contra tsunamis en el pacífico) y el Proyecto Plan Trifinio

La Unión europea ha financiado el Programa Regional de Reducción de la Vulnerabilidad y Degradación Ambiental (PREVDA) con 20 millones de euros para implementarse en 6 países de la región Centroamericana en con el objetivo de trabajar en actividades que aporten a la Gestión de riesgos, Gestión Ambiental y Gestión Integrada del Recurso Hídrico.

**Context & Constraints:**

Es necesario disponer de un sistema para el intercambio de experiencias, tecnologías y recursos necesarios para la Gestión de Riesgo, así como es importante contar con los recursos económicos y humanos necesarios, para garantizar el sostenimiento y seguimiento de los proyectos y programas donde participa El Salvador.

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**Guatemala** (in Spanish)**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

### **Means of Verification:**

- \* No: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* Yes: Agreed national standards for multi hazard risk assessments

### **Description:**

Se ha establecido que el riesgo es el producto de la interacción de la sociedad con la naturaleza. Por lo tanto para tener una comprensión del riesgo se hace necesario establecer un proceso de articulación entre personas, territorios y recursos alrededor de los conceptos de amenazas, vulnerabilidad y riesgo. Reconociéndose el riesgo como producto de una combinación compleja de vulnerabilidad y amenaza.

Llegar a desarrollar este nivel de análisis una tarea que Guatemala ha entendido como un proceso que parte de ampliar la valoración de la amenaza a la estimación de los niveles de vulnerabilidad en los que se encuentran las poblaciones asentadas en el territorio, entendiendo que la vulnerabilidad está íntimamente relacionada con los procesos sociales que se desarrollan en los territorios.

De esta cuenta el país aún no desarrolla evaluaciones de riesgo. Sus avances radican en la estimación de susceptibilidad de los territorios ante diferentes amenazas y la valoración de algunos aspectos sociales asociados a los índices de pobreza.

Poder determinar esa compleja combinación de vulnerabilidad y amenaza, que genere evaluaciones nacionales y locales de riesgo, es un tema incipiente.

### **Context & Constraints:**

Comprender el riesgo implica establecer un proceso de articulación entre personas, territorios y recursos alrededor de los conceptos de amenazas, vulnerabilidad y riesgo, para lo cual se han iniciado una serie de acciones interinstitucionales que en el mediano y largo plazo permitan a Guatemala:

- \* Elaborar, revisar, actualizar y difundir permanentemente los escenarios futuros incluyendo la variabilidad climática que sirven de fundamento a programas y proyectos de adaptación
- \* Crear el Sistema Nacional de registro y monitoreo de evaluaciones de riesgos de proyectos de inversión no pública, de libre acceso a la ciudadanía
- \* Elaborar, revisar y actualizar mapas nacionales, departamentales y municipales de amenazas y vulnerabilidades de acceso libre a autoridades, funcionarios, académicos y ciudadanos
- \* Incluir la variable riesgo en los sistemas de información territorial, ambiental, y poblacional
- \* Establecer metodologías nacionales para la evaluación de amenazas y vulnerabilidades en ámbitos territoriales y sectoriales
- \* Modernizar la red nacional de estaciones de observación y medición de eventos hidrometeorológicos y geológicos.

### **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

**Description:**

Desde 2001 se tiene la plataforma informática del Sistema de Manejo de Información en Caso de Emergencia o Desastre (SISMICEDE), pero es a partir del segundo semestre 2008, que se fortalece técnicamente para que la misma permita administrar, una base de datos de daños nacional, que fortalece el inventario de desastres que en la plataforma DesInventar Guatemala actualizó hasta el 2009.

Con el SISMICEDE, se cuenta con un registro acumulado de daños y acciones de atención a la emergencia, no así los datos sobre pérdidas y necesidades postdesastre.

Se tienen identificados los territorios susceptibles de inundación y deslizamiento, información entregada a cada uno de los 333 municipios en los que se divide políticamente el país, y se generaron las capacidades técnicas en el Instituto Geográfico Nacional para realizar esta misma tarea.

SEGEPLAN ha impulsado la inclusión de la variable riesgo como eje transversal en la planificación, interesando a las municipalidades a conocer acerca del daño y pérdidas generadas por los desastres.

Con la erupción del volcán Pacaya y el impacto de la tormenta tropical Agatha en junio 2010, se realiza la evaluación de daño y pérdida postdesastre, liderado por SEGEPLAN y la SECONRED, con el apoyo interagencial de CEPAL, BID, BM y PNUD. Proceso que permite a técnicos guatemaltecos, realizar una evaluación integral de daño, pérdida y necesidad.

La comisión de Reducción de Riesgo, de la MNDGRRD, impulsó en el último año:

\* El uso del Índice de Seguridad Hospitalaria elaborado por OPS

\* Creación del Índice de Seguridad de Centros Educativos

\* Elaboración de mapas de riesgo a escala 1:25,000 ante inundación y deslizamiento en las cuencas de los ríos Madre Vieja, Coyolate, Nahualate y Suchiate

\* Evaluación de amenaza sísmica, desde el proyecto RESIS II.

**Context & Constraints:**

Guatemala tiene grandes avances en el análisis, valoración y evaluación de amenazas, sin embargo solventar el desafío de analizar y sistematizar los conocimientos generados en torno a la vulnerabilidad ante desastres, establecer conceptos, definiciones e indicadores acordes a la realidad guatemalteca, es un proceso que recién en el 2009 empieza a generar sus primeros resultados.

Aunque el proceso ha mostrado grandes avances en la construcción conceptual, los intentos por la medición de la vulnerabilidad se han centrado principalmente en dos variables; la vulnerabilidad ambiental y la vulnerabilidad estructural, que aunque acortan la brecha existente entre los avances que en relación a la valoración de la amenaza se han tenido, no abordan la vulnerabilidad social, considerada una variable determinante en la disminución de la resiliencia de las poblaciones.

Otro reto considerable es la aplicación de las herramientas que para determinar el índice de seguridad en hospitales y centros educativos tiene Guatemala. Según el último censo de infraestructura escolar levantado en el año 2005 se contabilizaron 14,599 centros educativos en funcionamiento de los cuales menos del 1% han sido evaluados; situación que en el tema de hospitales no es distante, donde únicamente el 9% de los 43 hospitales nacionales ha sido evaluado.

Finalmente el reto es lograr generar compromisos institucionales en los que se comprenda y se reconozca la importancia de generar sinergias en todos los procesos del manejo de información de riesgo ante desastres; observación, monitoreo, archivo, control de calidad, análisis, síntesis y difusión. Datos con los que permitan orientar de mejor manera las acciones que desde la implementación de la política pública para la reducción de riesgos a los desastres se impulsen en Guatemala.

## **Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### **Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

### **Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* No: Active involvement of media in early warning dissemination

### **Description:**

Se desarrollaron 17 sistemas de alerta temprana en 10 cuencas de ríos, 3 volcanes, 3 puntos de deslizamientos y una zona costera. Su implementación parte de un componente técnico de instrumentalización con la instalación de bases de radio y pluviómetros, sensores de nivel y de inundaciones súbitas, diseñados y elaborados artesanalmente.

Otro componente social establece las bases de organización comunitaria para la toma de acciones que eviten o reduzcan el riesgo de sus pobladores.

Un total de 189 bases de radio, 29 sensores de río, 7 estaciones de alerta ante huracanes y 3 extensómetros para el monitoreo de movimientos de masa, han sido instalados.

Se han creado los manuales SAT ante inundaciones y huracanes, realizando 199 jornadas de capacitación comunitaria y un diplomado a nivel técnico sobre el tema.

El reconocimiento sobre los avances que Guatemala ha tenido generaron la solicitud por parte de instituciones gubernamentales y de la sociedad civil de Honduras, El Salvador, Nicaragua, Costa Rica, Panamá y Mozambique en África, de asistencia técnica en programas de cooperación sur-sur.

Con los proyectos DIPECHO se diseñó e implementó en dos áreas marginales de la capital de Guatemala, un sistema de monitoreo de lluvias y alerta ante deslizamientos en zonas urbanas, actualmente funciona con cuatro estaciones de monitoreo, la transmisión de datos en tiempo real y la instalación de la Mesa Técnica conformada por la Municipalidad de Guatemala, Oxfam GB, Cooperación Italiana, SE-CONRED e

INSIVUMEH.

Se trabaja en el rescate, valorización y promoción de los conocimientos y sabidurías ancestrales en gestión para la reducción del riesgo a los desastres, que a través de la Comisión de Seguimiento, próxima a instalarse, busca sistematizar la sabiduría ancestral que permita la creación de sistemas alternativos de información y alerta temprana a las comunidades más vulnerables del país.

**Context & Constraints:**

Fortalecer los sistemas de alerta temprana en el contexto social es el principal reto.

Interconectar los niveles comunitarios e involucrar a las autoridades territoriales se constituye en la primera tarea. El 99% de los sistemas actualmente habilitados, mantienen un funcionamiento que va del nivel local al nacional sin una participación relevante de los gobiernos locales, quienes limitan su participación a ser una estación más del sistema y no como el ente territorial que monitorea la información generada y sobre ella orienta las acciones comunitarias hacia una mejor capacidad de respuesta.

La segunda tarea pendiente, es sistematizar la información generada desde el nivel local, principalmente lo relacionado al monitoreo de la amenaza. Actualmente la información sólo es almacenada, sin considerar pautas o criterios que permitan conocer de mejor manera las amenazas y los riesgos a los que están expuestas las poblaciones.

Finalmente es necesario desarrollar servicios de monitoreo y alerta bajo procesos estandarizados que permitan generar una sólida base científica que en el menor tiempo posible pueda efectuar pronósticos que faciliten la emisión de alertas precisas y oportunas.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

1 - Minor progress with few signs of forward action in plans or policy

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* No: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

**Description:**

Las instituciones estatales, a pesar de estar participando en la ejecución de varios proyectos no han logrado articular esfuerzos a nivel Centroamericano para la transferencia de información que permita la toma de decisiones desde una perspectiva de región y no de país.

Tres son los proyectos más significativos:

- \* El Programa Regional de Reducción de la Vulnerabilidad y Degradación Ambiental –PREVDA-

\* La iniciativa titulada, Evaluación Probabilística de Riesgos en Centroamérica (CAPRA, por sus siglas en inglés); y

\* El proyecto RESIS II

Estos forman parte de un esfuerzo continuo que espera contribuir al desarrollo sostenible de la región al respaldar una estrategia regional que fomente la evaluación del riesgo de desastres y la toma de decisiones en todos los sectores en torno a la gestión del riesgo.

Su principal producto en términos generales es una serie de mapas de riesgo generados bajo una metodología que determina el riesgo de forma probabilística en tres diferentes dimensiones, la protección y el manejo de cuencas hidrográficas en el caso de PREVDA, la exposición de la inversión pública en el caso de CAPRA y la amenaza sísmica en caso de RESIS II.

En el marco del Subsistema ambiental del SICA, que incluye acciones de ambiente, agua y reducción de riesgos, se están trabajando dos sistemas de manejo de información técnico científico, como lo es el Sistema de Información Ambiental Mesoamericano y el Sistema Regional de Visualización y Monitoreo.

En Guatemala, el Ministerio de Relaciones Exteriores a través de la Dirección General de Límites y Aguas Internacionales, impulsa una serie de acciones encaminadas a restaurar aquellas obras de encauzamiento y estabilización en las riveras de los ríos que son considerados límites fronterizos con México, El Salvador y Honduras.

#### **Context & Constraints:**

Aunque contruidos con una visión regional, los proyectos y plataformas regionales que buscan establecer escenarios de riesgo transfronterizos, dependen de las instituciones y técnicos locales para la construcción de datos y variables, muchos de ellos establecidos sin un diagnóstico previo que determine la capacidad instalada existente para el efecto.

Esta situación ha generado que en el caso específico de Guatemala, el impacto de estos proyectos sea limitado y ajeno a las necesidades reales del país en relación al análisis y valoración de amenazas y vulnerabilidades.

De igual manera, al ser este tipo de iniciativas proyectos que se construyen ajenos a las instancias rectoras, al concluir los mismos, las herramientas o compromisos generados no encuentran cabida dentro de las estructuras nacionales, lo que en más de una ocasión ha generado el abandono de los proyectos.

Superar estas limitaciones se considera el principal reto de un tema, que aunque necesario, manifiesta un progreso mínimo con pocos indicios de propiciar acciones en los planes o las políticas.

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## **Honduras** (in Spanish)

### **Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

#### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

No

**Means of Verification:**

- \* No: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

En el artículo 4 Inciso No. 2 de la Ley del Sistema Nacional de Gestión de Riesgos se instruye a Toda persona natural y jurídica, en cualquier ámbito de su acción social debe incluir obligatoriamente en sus planes y acciones de cualquier naturaleza una "Evaluación de Riesgos", a fin de prevenir y reducir al máximo la generación de posibles daños asimismo y a terceros, con el propósito de hacer la comunidad más segura y de no incurrir en responsabilidad por negligencia; De Igual Forma en el Artículo No 24, manda a los Oficiales de Prevención a Realizar las Evaluaciones de Riesgo a través del uso de fichas técnicas.

**Context & Constraints:**

No se cuenta con suficiente personal capacitado en áreas como Geología, Hidrología, Meteorología, Sismología, entre otros. De igual forma, como la Ley del Sistema Nacional de Gestión de Riesgos SINAGER es de Reciente publicación y puesta en marcha, aun no se cuenta con oficiales en la mayoría de las Instituciones Gubernamentales y de la empresa privada.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

- \* Yes: Disaster loss database
- \* No: Reports generated and used in planning

**Description:**

Se está haciendo la compra e implementación de un sistema de información a través del cual se llevara el monitoreo de las emergencias y a traes de él se informara a todos los miembros del Sistema Nacional de Gestión de Riesgos de todos los pormenores del desenvolvimiento de cualquier emergencia o desastre.

**Context & Constraints:**

El Sistema recién se está comprando hace falta que se implemente y se adecue a la realidad de nuestro país para ponerlo en práctica. Deberá hacerse una capacitación masiva sobre el uso del sistema y socialización de los informes que este genera.

### **Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

#### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

#### **Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

#### **Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* No: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

#### **Description:**

Se cuenta con sistemas de alerta temprana en los principales ríos del país el cual puede ser monitoreado a través del internet, de igual forma existen sistemas de alerta temprana comunitarios a inundaciones y deslizamientos en lugares críticos que recurrentemente se ven afectados por inundaciones a inundaciones o deslizamientos. Se está implementando un Sistema de alerta a Inundaciones a Nivel Nacional donde se han establecido claramente los umbrales y niveles de alerta en distintos puntos de la cuenca.

#### **Context & Constraints:**

Hace falta la implementación de mayor cantidad de sistemas de alerta temprana comunitarios y el establecimiento de una política nacional para el manejo de los mismos para que exista fluidez en el intercambio de la información con el departamento de sistemas de alerta temprana de COPECO.

### **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

#### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

#### **Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

#### **Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues

\* Yes: Regional and sub-regional strategies and frameworks

\* Yes: Regional or sub-regional monitoring and reporting mechanisms

\* No: Action plans addressing trans-boundary issues

### **Description:**

1. En programa PREVDA tiene como objetivo desarrollar condiciones políticas e institucionales en la región centroamericana para impulsar en cada uno de los seis países (Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica y Panamá) cambios hacia la gestión integral de los riesgos relacionados con el agua, con una perspectiva de Gestión Ambientalista Una de las acciones nacionales consiste en desarrollar reducción de riesgos en zonas fronterizas en Honduras, apoyando acciones de protección y manejo de cuencas hidrográficas, protección de recursos hídricos (ríos y zonas acuíferos).

En Honduras se están trabajando en los Ríos Choluteca, Soledad y Taxisguat, en los departamentos de Francisco Morazán, El Paraíso y Choluteca, beneficiando a 150 habitantes. Así mismo, Participa de las acciones que PREVDA apoya en la zona del Trifinio (Guatemala, El Salvador y Honduras) como parte de las zonas compartidas entre los tres países.

2. Convenio binacional de apoyo mutuo de los Cuerpo de Bomberos de El Salvador y Honduras.

3. Apoyo al Mecanismo Regional de apoyo mutuo en casos de desastres.

Honduras, en el marco regional del Sistema de Integración Centroamericano (SICA), por medio de COPECO es el actual presidente pro-tempore (2010-2011) del Consejo de Representantes, junto al resto de países centroamericanos, del Centro de Coordinación para la Prevención de Desastres Naturales en América Central (CEPREDENAC). El CEPREDENAC posee como Dicho organismo ha desarrollado procesos a fin de poseer un Marco Regional de Políticas, Estrategias y planes de reducción y gestión del riesgo.

Los principios que orientan las políticas, planes, estrategias y proyectos de CEPREDENAC son los siguientes:

1. La promoción del Enfoque Integral de Reducción de Vulnerabilidad como elemento indispensable de los procesos de desarrollo, lo cual implica el enfoque sistémico en la institucionalidad nacional, la promoción sectorial, regional y nacional, y la adecuación de normativas.

2. La ampliación de la participación hacia otros sectores institucionales y de la sociedad civil.

3. El fortalecimiento de capacidades locales para la reducción del riesgo.

4. El fortalecimiento a las capacidades de respuesta en los niveles local, nacional y regional

En dicho marco, Honduras, por medio de su Comisión Nacional, Enlaces Nacionales y el Consejo de Representantes de CEPREDENAC y equipos técnicos, ha participado en esfuerzos regionales, se mencionan los siguientes:

1. El proceso de actualización del Plan Regional de Reducción de Desastres (PRRD) 2006 – 2015. Objetivo de Desarrollo del PRRD 2206-1015 es: Contribuir a la reducción del riesgo de desastres como parte integral del proceso de desarrollo sostenible y seguro de la sociedad centroamericana

2. El proceso de elaboración y aprobación de la “Política Centroamericana de Gestión Integral de riesgo de Desastre (PCGIR), aprobada en la XXXV Aprobada en la XXXV Reunión Ordinaria de Jefes de Estado y de Gobierno de los países del Sistema de la Integración Centroamericana, Panamá 29 y 30 de junio de 2010.

### **Context & Constraints:**

La PCGIR posee el siguiente objetivo : Dotar a la región centroamericana de un marco orientador en materia de gestión integral del riesgo de desastres, que facilite el vínculo entre las decisiones de política con sus correspondientes mecanismos e instrumentos de aplicación, entrelazando la gestión del riesgo con la gestión económica, la gestión de la cohesión social y la gestión ambiental, desde un enfoque

integral (multisectorial y territorial), de respeto y garantía de los derechos humanos, y considerando la multiculturalidad y la Equidad de Género.

3. Nuevo convenio constitutivo de CEPREDENAC El nuevo Convenio Constitutivo fue firmado, en Septiembre del 2003, por los Ministros de Relaciones Exteriores de los gobiernos de Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua y Panamá, ratificado por todos los Congresos ó Asambleas Nacionales de los países centroamericanos; en vigencia desde el 12 de julio del 2007.

El objetivo general del nuevo Convenio es “contribuir a la reducción de la vulnerabilidad y el impacto de los desastres, como parte integral del proceso de transformación y desarrollo sostenible de la región, en el marco del Sistema de la Integración Centroamericana (SICA), a través de la promoción, apoyo y desarrollo de políticas y medidas de prevención, mitigación, preparación y gestión de emergencias” (Convenio Constitutivo vigente julio 2007, pp. 3).

[ X]Mecanismos regionales o subregionales para monitorear e informar

En el marco de las acciones que desarrollan los países centroamericanos con el apoyo de CEPREDENAC, se desarrollan esfuerzos regionales orientados a homologar metodologías de trabajo, mecanismos de coordinación y trabajo, entre ellos mencionar las siguientes iniciativas:

1. Organización de la sala de videoconferencias en el marco de la gestión del riesgo. Con el apoyo del Gobierno de Taiwán, se está organizan en COPECO una sala de video conferencias para facilitar el proceso de comunicación e información entre los países centroamericanos. En el mismo componente, COPECO está participando en el proceso de definición e implementación de la plataforma nacional y/o regional de gestión de riesgos en Centroamérica. Dicha plataforma se encuentra en proceso de desarrollo, pero incluye al menos los siguientes componentes: Gestión de documentos, seguimiento a decisiones políticas, gestión de la respuesta y recuperación, manejo de información técnica-científica, gestion administrativa, entre otros.

2. Recientemente con el apoyo de DIPECHO, en el marco de su VII plan de acción. Se desarrollara en la región Centroamérica, incluyendo Honduras. Acciones orientadas a consolidar los Sistemas Nacionales de Alerta Temprana (SAT). Se incluye la identificación y ubicación de SAT en la región, un diagnostico de funcionamiento y el desarrollo de una experiencia concreta en cada país. Este proceso consolidara los mecanismos nacionales y regionales de monitoreo en temas de SAT.

3. Adicionalmente, en el marco del Sub-sistema ambiental del SICA, que incluye acciones de ambiente (CCAD), agua (CRRH) y reducción de riesgos (CEPREDENAC), se está trabajando en sistemas de manejo de información que consolidan el manejo de información técnico científico, se puede mencionar el SIAM (sistema de información ambiental mesoamericano) y el SERVIR (Sistema Regional de Visualización y Monitoreo).

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## Jamaica (in English)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

#### Level of Progress achieved:

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

#### Is there a national multi-hazard risk assessment available to inform planning and development decisions?

No

#### Means of Verification:

- \* No: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* Yes: Gender disaggregated vulnerability and capacity assessments
- \* Yes: Agreed national standards for multi hazard risk assessments

**Description:**

There is a deliberate effort at collecting and making hazard and vulnerability data available. This is usually through damage assessment reports, a national disaster catalogue and annual incident reports and hazard maps prepared by the respective technical agencies. These reports are available to the general public to inform their projects. This information has also guided our intervention in communities and has been used in the preparation of hazard inventory maps and hazard maps. Hazard data has also been used in the development of a methodology to rank vulnerable communities. Academia has also been instrumental in researching some of this data.

So far, no risk assessments have been undertaken for key sectors but efforts are currently underway to achieve this in the agriculture and tourism sectors. The housing sector will be focused on towards the end of the 2008-2011 Planning Cycle.

Caribbean Risk Atlas / National Risk being developed by UWI with ODPEM support.  
 National Spatial Plan Project 90% complete re. data sourcing.  
 Discrete hazard maps exist for landslide, earthquake.  
 School Safety Programme underway (USAID).  
 PAHO conducting Safe Hospitals Programme.

**Context & Constraints:**

- Resources to undertake sectoral risk assessments are limited.
- Priorities for the national disaster office and sectors sometimes differ and so getting the support and buy-in at the time of implementation is sometimes difficult.
- Little ownership of Disaster Management Responsibility at the sector levels.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

- \* Yes: Disaster loss database
- \* Yes: Reports generated and used in planning

**Description:**

Data is collected at the national disaster office by way of damage assessment reports in post disaster events and incident logs. The damage assessment data includes data from other sectors and specialized agencies that monitor flood gauges, flood data and landslide data and inventories.

Pre impact data is also available through hazard maps prepared by water resources authority, Mines and Geology, and the Earthquake Unit. Some of this work has been achieved through project funding.

GIS is being used more extensively for the before, during and after impact to generate pre-impact scenarios, archive and monitor data on impacts from hazards. Hazard data is also shared with other agencies using GIS.

Data on hazards and vulnerability are also disseminated from a documentation centre operated from a national level coupled with communication strategies, which are used to disseminate information on hazard vulnerability in an effort to place risk reduction issues on the national agenda.

ECLAC methodology for disaster loss assessment embedded in PIOJ - no database but data exists. Process used extensively by sectors and academia.

National Water Authority developing flood and landslide hazard mapping.

Vulnerability ranking methodology used as an analytical tool for making decisions.

LICJ collaborating with agencies to capture geospatial data.

**Context & Constraints:**

- The GIS is used to store several pieces of information. However, data is not stored in a database format which allows for easier access and analysis.
- The reports are sometimes not as comprehensive as they ought to be because of the failure of some entities to submit detailed damage assessment information.
- The documentation centre needs to function as a complete repository of hazard vulnerability data but is affected by space constraints and financial incapacity to improve current technologies.
- Limited pre-impact baseline data exists.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

### **Description:**

Extensive work has been accomplished in the establishment of Flood Early Warning Systems. Agency identified with dedicated responsibility in terms of data collection through rain, river and stream gauges complemented by community -based flood early warning systems. Community-based Flood Early warning teams have been established along major river basins and waterways and have been given the capacity to communicate within a network to relay information both at the local and national level.

Good progress has been made in terms of Early Warning Systems in place for Hurricanes & Floods. Doppler Radar Technology is utilized and complimented by satellite imagery. Telemetric Flood Warning Systems and Community Flood Gauges are also in place to enhance the early warning capabilities for floods. Three communities were also trained to interpret radar data via internet as a means of enhancing early warning.

For Earthquakes, a National Seismograph Network is in place to generate data following an earthquake to quickly inform decision- makers in taking the necessary steps to curtail infrastructural damage to affected communities and provide the necessary alerting mechanism for the probability of aftershocks. The country is now a signatory to a Regional Tsunami Warning System established with mechanisms established to expedite functions under this responsibility.

Data available in terms of earthquake and landslide susceptibility maps and research is continually being undertaken in tandem with universities, and continuing through country - based academia with partnerships with local and external universities and government agencies.

A major EWS system is now in place for the vulnerable Bog Walk area. Doppler satellite imagery is available via streaming link from Met Services. Landslide hazard map completed for St Catherine and St Thomas. Portmore now has multi-hazard map.

### **Context & Constraints:**

- Earthquake susceptibility maps available for two geographic regions(sections of St Thomas and ST Catherine).
- Good progress made with landslide susceptibility maps which are also available at the local level. However these projects are largely implemented with international donor funding. As such there is the absence of an overarching programme with progress achieved annually.
- Several manual gauges are to upgraded to telemetric; more data gathering sensors need to be implemented.
- The national documentation centre needs to function as a complete repository of hazard vulnerability data. Restricted by financial incapacity to improve current technologies.

### **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

## Does your country participate in regional or sub-regional DRR programmes or projects?

Yes

### Means of Verification:

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

### Description:

Jamaica is one of sixteen participating states that form the Caribbean Disaster and Emergency Management Agency (CDEMA) which was established by the Caribbean Community (CARICOM) initiative. Regional cooperation has been achieved through CDERA initiatives such as the Comprehensive Disaster Management (CDM) Strategy. Jamaica's function as a regional focal point for neighbouring states has also led to the sharing of data with a view to measuring transboundary risks especially for the Turks and Caicos Islands, the Bahamas and Belize.

Regional Tsunami Warning system established with Jamaica as a signatory.

The country is also part of the UN System-led regional focal grouping to expedite more effective emergency response for the northern section of the Caribbean. This had led to further information sharing and has led to greater regional cooperation in responding to emergencies. The National Disaster Office has forged a relationship with the General Council of Martinique where mutual areas of good practice have been identified and strategies and approaches identified for the transfer of the skills and knowledge.

### Context & Constraints:

Absence of Caribbean economic integration which would serve as a catalyst for greater work in Disaster Risk Reduction at the regional level.

- Lack of commitment by national leaders to finalize issues such as the revamping of a uniform building code that can be made applicable across the Caribbean.
- Improvements in mechanisms to enable Caribbean countries to communicate speedily and share data effectively.

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## Mexico (in Spanish)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

### Level of Progress achieved:

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

## Is there a national multi-hazard risk assessment available to inform planning and development decisions?

Yes

**Means of Verification:**

\* Yes: Multi-hazard risk assessment

\* 12.13% / 5.56% % of schools and hospitals assessed

\* 0 schools not safe from disasters (specify absolute number)

\* Yes: Gender disaggregated vulnerability and capacity assessments

\* Yes: Agreed national standards for multi hazard risk assessments

**Description:**

El Atlas Nacional de Riesgos (ANR) de México, contiene información actualizada sobre peligro, vulnerabilidad y riesgo e incluye nuevas capas de información generadas por el CENAPRED, dándoles un formato homogéneo con respecto a su referencia espacial y, se generaron sus metadatos, así como los campos descriptivos de las tablas asociadas. Este sistema, está soportado en la plataforma IRIS del Instituto Nacional de Estadística y Geografía (INEGI) para su fácil manejo y amplia distribución a instancias de gobiernos federales, estatales y municipales. Fueron revisados mapas y el proyecto sobre información geoespacial generados por el CENAPRED sobre las declaratorias de emergencia, contingencia y desastre acontecidos en el 2007.

Un logro importante en cuanto a la optimización de los recursos invertidos para la implementación de un sistema de monitoreo, notificación y alertamiento de amenazas, ha sido la inversión de recursos a nivel nacional en los 32 servicios estatales de salud (SESA), con la finalidad de fortalecer su puesta en marcha y en forma paulatina, se han registrado avances importantes en las entidades que han iniciado las acciones de monitoreo de todas las fuentes disponibles de información.

En lo que hace a las evaluaciones educativas, a la fecha se ha realizado el diagnóstico de 27,000 planteles educativos públicos (12.13% de la infraestructura física educativa del país).

De 2009 a 2010, se realizaron seis reuniones extraordinarias con asesores de la Organización Panamericana de la Salud (OPS), a fin de generar la estrategia de fortalecimiento de la capacidad funcional de los hospitales ante el brote de Influenza AH1N1.

En el marco del Programa Hospital Seguro, durante 2009, 355 unidades hospitalarias reportaron avances en la implementación de medidas para fortalecer la capacidad funcional frente a emergencias epidemiológicas.

**Context & Constraints:**

Continuar la evaluación de la infraestructura escolar y la red hospitalaria, así como mejorar los sistemas de alerta temprana existentes en los estados y principalmente en los municipios que son más vulnerables a los efectos de los desastres de origen natural

La alerta temprana es aún, un mecanismo que no se encuentra estandarizado en todo el país, pero se han realizado progresos y se tiene planeado que se incorpore a las instancias para el adelanto de la mujer en los municipios con mayor vulnerabilidad.

En materia de salud, es necesario establecer un mecanismo de verificación para determinar el avance en

es establecimiento del sistema en cada una de los 32 SESA y establecer redes regionales de monitoreo y alertamiento.

## **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### **Are disaster losses systematically reported, monitored and analysed?**

Yes

### **Means of Verification:**

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

### **Description:**

Se promueve la investigación y el desarrollo tecnológico para profundizar en el conocimiento de los riesgos y las amenazas. Se ha detallado el estudio social de los desastres y sus causas estructurales.

El CENAPRED desarrolla la “Base de datos acerca del impacto social y económico que provocan los desastres en México”. Dicha base de datos, se encuentra sobre la hoja de cálculo EXCEL, sin embargo en próximas fechas cambiará a un sistema automatizado más robusto que facilite su administración. Al día de hoy, cuenta con alrededor de seis mil registros con 22 campos en cada uno: Fecha, Año, Clasificación del fenómeno, Tipo de fenómeno, Clave del Estado, Nombre del Estado, Municipios Afectados, Descripción general de los daños, Muertos, Población afectada (personas), Viviendas dañadas, Escuelas, Hospitales, Área de cultivo dañadas, Caminos afectados (Km.), Total de daños (millones de pesos), Total daños (millones de dólares), Tipo de declaratoria, Sustancia involucrada, Fuente, Observaciones, Documentado.

Asimismo y con base al Atlas de Riesgos, el sector salud ha identificado las amenazas y vulnerabilidades para establecer escenarios de riesgo en relación a las posibles afectaciones a la infraestructura de los servicios como en la generación afectaciones y riesgos a la salud que pudieran originar el desastre, según la amenaza.

Por otro lado, el Instituto Nacional de la Infraestructura Física Educativa (INIFED) continúa trabajando en el “Proyecto de Verificación Física y Documental de Obras”, con el fin de promover estrategias de supervisión nacional, a través de acciones correctivas y preventivas en la mejora de la calidad y seguridad de la infraestructura física educativa.

Cabe señalar que México se encuentra en una fase de implantación del sistema de alerta temprana, la cual tiene que ser fortalecida por todas las instituciones involucradas en la gestión del riesgo de desastre.

### **Context & Constraints:**

Se continuará con el proyecto para incorporar la alerta temprana en el mayor número de municipios del país. En este sentido, el INMUJERES se ha comprometido a impulsar la participación de los institutos municipales de la mujer en el tema de gestión integral del riesgo.

Asimismo, se dará capacitación al personal del programa de acción de urgencias epidemiológicas y desastres de los 32 SESA para mejorar las habilidades de planeación y organización de la preparación y respuesta ante un desastre.

## **Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### **Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

### **Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

### **Description:**

Se visitaron las ciudades que cuentan con sistemas de alerta hidrometeorológica (contra inundaciones, específicamente). El objetivo es tener en las mejores condiciones los equipos y programas de cómputo que permitan que los sistemas alerten durante la temporada de lluvia, que es durante el verano, a excepción de Tijuana, que es durante la época invernal.

Como parte de dicho objetivo, el CENAPRED actualizó el boletín hidrometeorológico que emite mediante su sitio electrónico, el cual proporciona información sobre la situación meteorológica del país y los posibles efectos negativos que provocan las lluvias intensas. Asimismo, el SINAPROC ha avanzado en el sistema de alerta temprana, en particular para la detección de ciclones tropicales, por lo cual periódicamente actualiza el boletín electrónico del Sistema de Alerta Temprana de Ciclones Tropicales (SIAT-CT), el cual cuenta con un Sistema de Información Geográfica. Cabe señalar que el Sistema SIAT-CT es destacado y reconocido a nivel mundial y colabora en la reducción de pérdida de vidas humanas.

Se trabaja en la creación de un Sistema de Alerta Temprana para Frentes Fríos y Nortes, para definir las zonas y el tipo de alertamiento ante el paso de éstos fenómenos sobre territorio mexicano. Asimismo, se realizó una evaluación de la actividad de varios volcanes activos o potencialmente activos en México.

Otras acciones:

- Difusión de información para la autopreparación y prevención.
- Difusión del atlas de riesgos municipales, estatales y nacionales.
- Colaboración en la creación de un sistema de alerta temprana en los Estados de Oaxaca y Jalisco.

En el seno de los Comités para la Seguridad en Salud, se han establecido instancias con el fin de aportar información para el monitoero y la identificación de las diferentes fuentes y se elaboran los directorios de

los enlaces de las diversas instancias que deben recibir la información y/o alertamiento.

**Context & Constraints:**

Se deben optimizar los recursos informaticos y aprovechar los avances tecnológicos para mejorar la difusión de alertas, así como diseñar mecanismos que permitan hacer llegar las alertas en forma temprana hasta el nivel de las unidades básicas de salud, en conjunto con Protección Civil.

Para 2012, se espera que el país cuente con una mayor cobertura de municipios que cuenten con un sistema de alerta temprana para los distintos tipos de riesgos.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

**Description:**

México da continuidad a los compromisos de cooperación técnica y científica contraídos en el marco del Sistema de Coordinación Mesoamericano de Información Territorial para la Reducción de Riesgos de Desastres Naturales del Proyecto Mesoamérica. Asimismo, apoya el establecimiento de prioridades para la implementación del Convenio de Estocolmo, a través de un proceso consultivo y tomando como base los objetivos y actividades listados dentro de la Estrategia de Política Global de la Gestión de los Productos Químicos a Nivel Internacional (SAICM).

Entre los acuerdos internacionales en los que México participa activamente y contemplan los riesgos transfronterizos, se destacan la Alianza para la Seguridad y Prosperidad de América del Norte (ASPAN) y el Acuerdo en Materia de Cooperación para Casos de Desastres Naturales sostenido con el gobierno de los Estados Unidos de América.

**Context & Constraints:**

El Gobierno de México, ha suscrito numerosos acuerdos de cooperación regional con la intención de reducir el riesgo de desastres con miras a intercambiar experiencias en la materia e intensificar trabajos. El resto es la aplicación efectiva de dichos acuerdos que depende en muchos casos de la existencia de recursos en las partes contratantes.

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## Nicaragua (in Spanish)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

#### Level of Progress achieved:

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

#### Is there a national multi-hazard risk assessment available to inform planning and development decisions?

No

#### Means of Verification:

\* No: Multi-hazard risk assessment

\* 0 % of schools and hospitals assessed

\* 0 schools not safe from disasters (specify absolute number)

\* No: Gender disaggregated vulnerability and capacity assessments

\* No: Agreed national standards for multi hazard risk assessments

#### Description:

Existen esfuerzos de coordinación en los estudios de amenaza sísmica desde el nivel nacional y regional usando sistemas georeferenciado.

A través de INETER, se operan y mantienen las estaciones que conforman la Red Hidrométrica Nacional ubicada en las cuencas hidrográficas de mayor importancia, se vigila de manera permanente el Sistema de Pronóstico de Ríos, instalado sobre la cuenca hidrográfica del río Escondido.

Se cuenta con estudios de amenaza por tsunami en la costa del pacifico, diseño e implementación de un SAT en los municipios costeros, destacándose León con las comunidades de Salinas Grande, Las Peñitas y PoneLOYA; los municipio de Corinto y San Rafael del Sur, cuentan con un SAT ante tsunamis completo. A nivel urbano se ha logrado diseñar e implementar SAT por inundaciones y mapas de amenaza de inundación en las ciudades de Matagalpa y Estelí, y mapas de amenaza por inundaciones en la Refinería en el municipio de Nagarote.

Otro logro ha sido la elaboración de mapas de amenaza sísmica, volcánica, inundaciones, deslizamientos, sequias, huracanes, lluvias intensas, erosión entre otros priorizando los territorios que son afectados por este tipo de fenómenos.

Se ha alcanzado ejecutar un diagnóstico integral para 22 municipios con el apoyo del PNUD y se recolectaron datos sobre el nivel de conocimientos y preparación en RRD de poblaciones locales.

Actualmente las Normas Técnicas Obligatorias (NTON), Mínimas de Diseño Arquitectónico, se encuentran dentro del Comité Técnico para el consenso y socialización del mismo, se realiza monitoreo y vigilancia a través del sistema Sitios Centinelas, para evaluar la amenaza por hambruna, apoyándose en datos meteorológicos, consumo de alimentos diarios e indicadores de salud.

#### Context & Constraints:

Dentro de las principales limitaciones son la transferencia de conocimientos técnicos científicos hacia los gobiernos locales, la falta de sostenibilidad de los recursos humanos especializados como la no

apropiación de los comunitarios de su entorno más allá de lo local, la visión generalizada es de sobrevivencia o tradicionalista, sin interés hacia nuevas tecnologías.

## **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### **Are disaster losses systematically reported, monitored and analysed?**

Yes

### **Means of Verification:**

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

### **Description:**

Como parte de los componentes de los sistemas de alerta temprana, se realiza mantenimiento de las diferentes redes de monitoreo hidro-meteorológicas y geológicas, además que la entidad científica técnica mantiene servicio de vigilancia las 24 horas del día, toda la semana, mediante la ejecución de un turno sismológico y meteorológico. De acuerdo a los protocolos de funcionamiento existe una comunicación permanente con autoridades correspondientes entre Secretaria Ejecutiva del SINAPRED, Defensa Civil y medios de comunicación.

Se ha avanzado en la generación de información científica técnica, mediante la adquisición de equipos e instrumentos para el mantenimiento de las estaciones de la Red Hidrométrica Nacional, contando con el financiamiento de un proyecto dirigido al fortalecimiento de la Red y del Centro de Pronóstico Hidrológico. Se ha creado el SAT de la vigilancia de la sequía en tiempo real, con estaciones telemétricas de comunicación satelital, el Ministerio del Ambiente y Recursos Naturales (MARENA) ha desarrollado el SAT de Incendios Forestales (SATIFOR) en coordinación con INETER.

Como parte de la transferencia de conocimiento de la aplicación de instrumentos, se han capacitado a más de 400 técnicos municipales sobre la aplicación de las normativas de construcción y urbanismo, desarrollado por la Dirección de Normas y Urbanismo del Ministerio de Transporte e Infraestructura. Otro avance que se tiene en Nicaragua, es que a través del fondo CERF, el PNUD ha avanzado en un plan de preparación con recursos inmediatos para hacer frente a emergencias.

### **Context & Constraints:**

Igual que en el indicador 1, hay limitaciones en la transferencia de conocimientos técnicos científicos y su aplicación hacia los gobiernos locales, por otra parte las acciones de Gestión de Riesgo están distantes de ser considerados como sistemas integrales, donde estén incorporados los componentes ambientales, agua y riesgos.

## **Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### **Do risk prone communities receive timely and understandable warnings of impending hazard**

## events?

Yes

### Means of Verification:

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

### Description:

Se logro avanzar en la activación desde la central Geofísica, Meteorología y Recursos hídricos de la entidad Científica Técnica de Nicaragua, los sistemas de alerta locales digitales, ubicados en las comunidades, para tsunamis, inundación, volcanes y huracanes; también se envía comunicación por radio, en frecuencia UHF y VHF, a las autoridades de defensa civil para activar los sistemas de alerta temprana en sitios donde no se tenga comunicación digital.

Con el proyecto "Gestión Integral del Riesgo en el Litoral Marítimo Sur de la RAAN" se logró completar y fortalecer el SAT en los Municipios de Puerto Cabezas y Prinzapolka instalando sistemas de radio comunicación en las comunidades de Prinzapolka, Kuanwatla, Ariswatla, Sawmill, Walpasiksa, Wounhta, Hallover, Wawa Bar y Karata, se elaboraron mapas comunitarios con la finalidad de calificar los riesgos e identificar los recursos, planes de emergencia e indicación de las rutas de evacuación de cada comunidad. Se han establecido SAT comunitarios, promovidos por algunas ONG's nacionales e internacionales financiadas por el Programa DIPECHO, COSUDE, Cruz Roja Española y Holandesa (CRE, CRH), Intermon-Oxfam, entre otros; se pueden mencionar los SAT ante inundaciones impulsados por Agro Acción Alemana (AAA), Cruz Roja Española, Centro Humboldt (CH), entre otros; SAT ante deslizamiento e incendios forestales apoyados por ACSUR Las Segovias; SAT para el monitoreo volcánico, apoyados por CARE Francia; SAT ante Tsunami, implementado por Cruz Roja Nicaragüense (CRN) con el apoyo de CRH.

A través de proyectos se están fortaleciendo los comités municipales y comités locales, quienes poseen instrumentos válidos (rutas de evacuación, SAT, plan de comunicaciones, sistemas de alarma, etc.) en situaciones de emergencias, en donde tiene presencia Save the children.

### Context & Constraints:

Las estructuras creadas a nivel comunitario no disponen de fondos para la ejecución de actividades de preparación y/o respuesta frente a emergencia y las asignaciones presupuestarias a nivel municipal no son suficientes. La mayoría de las comunidades se destacan y dan mayor calificación a la evaluación del Riesgo.

### Priority 2: Core indicator 4

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

### Level of Progress achieved:

2 - Some progress, but without systematic policy and/ or institutional commitment

### Does your country participate in regional or sub-regional DRR programmes or projects?

Yes

**Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues
- \* No: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

**Description:**

Actualmente, se está realizando el diseño de la Política Nacional para la Gestión Integral del Riesgo a partir de la recién aprobada Política Regional para la Gestión Integrada del Riesgo (PCGIR).

Existe capacidades desarrolladas sobre medidas de Adaptación y Mitigación frente al Cambio Climático impulsadas con asociaciones municipales (AMUNORCHI Y AMULEON) y se ha elaborado cartilla básica; se ha impartido el curso Básico Nacional en Gestión de Riesgo y Respuesta Humanitaria y un Foro Nacional Cop 15 y Perspectivas Cop 16 y se ha tenido incidencia sobre las prioridades del Plan Nacional de Gestión de Riesgo.

La GVC, se constituyó formalmente la Red Humanitaria Nacional de Respuesta ante Desastres para garantizar un intercambio permanente de informaciones sobre la Gestión del Riesgo y coordinar esfuerzos, con los actores locales e internacionales del sector, para la preparación y respuesta en caso de emergencia.

Fortalecidas las acciones de Reducción de Riesgos de Desastres en niños, niñas y adolescentes, a través de Save the Children - Nicaragua.

El Instituto de Geología y Geofísica / Centro de Investigaciones Geocientíficas, instancia académica especializada de la Universidad Nacional Autónoma de Nicaragua (IGG-CIGEO/UNAN-Managua), impulsa la cuarta edición de la Maestría Centroamericana en Evaluación de Riesgo y Reducción de Desastres.

Existe esfuerzos por enriquecer la forma y disponibilidad de la información geoespacial en todos los niveles, implicando la identificación de instrumentos o puntos de convergencia donde todos los involucrados, ya sean actores, proveedores o usuarios establezcan una comunidad para la cooperación y beneficio mutuo en la materia de la reducción del riesgo a desastres por eventos naturales ó socio naturales.

**Context & Constraints:**

Las estructuras creadas a nivel comunitario no disponen de fondos para la ejecución de actividades de preparación y/o respuesta frente a emergencia y las asignaciones presupuestarias a nivel municipal no son suficientes. La mayoría de las comunidades se destacan y dan mayor calificación a la evaluación del Riesgo.

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**Panama** (in Spanish)**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

## Is there a national multi-hazard risk assessment available to inform planning and development decisions?

Yes

### Means of Verification:

- \* Yes: Multi-hazard risk assessment
- \* NO % of schools and hospitals assessed
- \* NO schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* Yes: Agreed national standards for multi hazard risk assessments

### Description:

Existen algunas evaluaciones de riesgos nacionales y locales, entre las cuales se pueden destacar:

“Susceptibilidad por inestabilidad de laderas en le Distrito de Boquete, Provincia de Chiriquí. Tesis: Yarelis Sanchez, Geógrafo Profesional, Universidad de Panamá, Coordinada por Arkin Tapia del Instituto de Geociencias de la Universidad de Panamá, 2009.

Informe de la Sismicidad Histórica de las Tierras Alta de Chiriquí e Informe Historia Eruptiva y de Evaluación de la Amenaza del Volcán Barú ([http://www.igc.up.ac.pa/index.php?option=com\\_content&task=blogcategory&id=3&Itemid=56](http://www.igc.up.ac.pa/index.php?option=com_content&task=blogcategory&id=3&Itemid=56))

Caracterización del Riesgo Geológico en el Sector 4, Calle 4ta, Veracruz, y la Caracterización del Riesgo Geológico en los Sectores 2 y 5 de Villa Grecia, Corregimiento de Las Cumbres, Alcalde Díaz, realizado por el Ing. Eric A. Chichaco R. del Instituto de Geociencias de la Universidad de Panamá en diciembre de 2008 y enero de 2009, respectivamente.

Debido a la problemática de la cuenca del río Chico, Natá, se ha iniciado la evaluación de las amenazas y riesgos en la cuenca, con miras a implementar la gestión de riesgo para trata de dar soluciones integrales a los problemas por las crecidas e inundaciones recurrentes incluso sequías provocadas por el exceso o falta de lluvias, utilizando enfoques de integración de sinergias Inter institucionales desde el inicio de la gestión, alentando la participación de usuarios y responsables de la planificación de forma abierta y transparente con medidas a muy corto plazo en puntos críticos del río que deben iniciar en enero de 2011 y con medidas a largo plazo que están por determinar.

Se cuenta con mapas de amenazas e inundaciones del sector Este de la provincia de Panamá y las Provincias de Darién y Bocas del Toro; estos mapas necesitan ser actualizados, además de completar el estudio para el resto del país.

Está en desarrollo el estudio sobre “Evaluación de Riesgo Sísmico en la Ciudad de Panamá”, Instituto de Geociencias.

Evaluación de inestabilidad de ladera, erosión costera y sedimentación.

También se han realizado estudios de evaluación de vulnerabilidad en estructuras y líneas vitales: Universidad de Panamá y Universidad Tecnológica de Panamá.

CATHALAC, con sede en Panamá, cuenta con la infraestructura y herramientas tecnológicas para llevar adelante estudios de evaluación que puedan ayudar en la regionalización de las amenazas.

Se han creado diversas comisiones nacionales que están contribuyendo de alguna forma a mejorar la gestión de riesgo en Panamá, entre ellas están: La Comisión Nacional de Cambio Climático de Panamá (CONACCP), La Comisión Nacional de Lucha Contra la Sequía y Desertificación (CONALSED) y la

Comisión Nacional del Programa Hidrológico Internacional (CONAPHI).

**Context & Constraints:**

Se necesita de la utilización de la Plataforma Nacional (Comisión Nacional de CEPREDENAC), para la creación de declaraciones que apoyen la determinación de las áreas vulnerables de Panamá. No se le ha dado el debido seguimiento a las inspecciones técnicas en acciones de prevención y mitigación, para desarrollar cambios en los procesos de desarrollos urbanísticos y de cuencas, que puedan contribuir a reducir el impacto de las inundaciones y así evitar que las personas construyan en áreas vulnerables. Existe poco recurso económico para afrontar la enorme demanda en la evaluación de diversas regiones expuestas a múltiples amenazas.

**RECOMENDACIONES**

Fomentar el nivel de investigación en el tema de riesgo de amenazas hidrometeorológicas. Realizar los análisis de vulnerabilidad de incendio en edificios altos. Aplicación efectiva de la ley en caso de agresión al medio ambiente, especialmente en aquellos casos que tenga consecuencia en la vulnerabilidad de una cuenca y en el ordenamiento territorial. Mejorar y ampliar las herramientas tecnológicas que apoyan el proceso de investigación.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

\* Yes: Disaster loss database

\* No: Reports generated and used in planning

**Description:**

La Gerencia de Hidrometeorología de ETESA realiza el monitoreo continuo (24/7) de los eventos hidrometeorológicos en tiempo real utilizando diferentes tecnologías, como: estaciones hidrometeorológicas de transmisión satelital que despliegan datos en tiempo real en la página web ([www.hidromet.com.pa](http://www.hidromet.com.pa)), imágenes meteorológicas satelitales en diferentes rangos de longitudes de onda, imagen de radar (ACP), Sistema de Detección de descargas atmosféricas, modelos numéricos de predicción meteorológica, entre otros. En este caso, la información obtenida (datos e imágenes) es archivada en el banco de datos y servidores. El producto de esta información (Avisos, Boletines y Pronósticos) es diseminado al sistema de protección civil y a los usuarios en general por medio de correos electrónicos y la web.

Monitoreo de la sismicidad a nivel nacional a través de la red sismológica de la Universidad de Panamá: en los últimos años ha aumentado el número y capacidad de registro de los sensores.

Proyecto de monitoreo iniciado en 2007 con la Universidad de Pensilvania y el Instituto de Geociencias para el seguimiento del desplazamiento de las placas tectónicas, mediante sistemas de posicionamiento global (GPS).

Monitoreo y vigilancia del Volcán Barú

Monitoreo con acelerógrafos en campo libre para medir la aceleración del suelo en caso de sismos.

Proyecto de localización automatizada de sismos.

Estos sistemas archivan y diseminan datos sobre estos eventos.

**Context & Constraints:**

Dispersión de la información.

Es indispensable aumentar los recursos económicos, mejorar las infraestructuras y seguir capacitando el recurso humano.

Falta de sistematización adecuada de las técnicas de análisis de amenaza de riesgo.

Inexistencia de formatos adecuados y homogéneos para la adquisición de datos.

**RECOMENDACIONES**

Establecer una sólo base de datos a nivel nacional para la gestión de riesgo.

Crear una biblioteca virtual nacional y/o regional en el tema de gestión de riesgo.

Dinamizar los mecanismos de diseminación de datos sobre las amenazas y vulnerabilidades.

Fomentar campañas educativas para mejorar el conocimiento de la población

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

\* Yes: Early warnings acted on effectively

\* Yes: Local level preparedness

\* Yes: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

**Description:**

El país mantiene Sistemas de Alerta Temprana (SAT), los cuales contribuyen a realizar el monitoreo de las posibles amenazas identificadas en la región especialmente ante inundaciones. Este es un trabajo conjunto entre la institución de monitoreo de la amenaza – ETESA- la institución de Protección Civil – SINAPROC – y la comunidad.

Se adecuó el Sistema de Alerta Temprana (SAT) a inundaciones en el río Changuinola.

Fortalecimiento del Comité de Gestión Local de Riesgos de Santa Rosa, Guayabalito (Represa Maddem, Panamá).

SAT en la cuenca del Río Cabra y en el Río Pacora (ETESA, SINAPROC, PREVDA).

Se completó la instalación del sistema de detección de descargas eléctricas atmosféricas y se espera que el mismo pueda estar disponible en la web en los próximos meses.

Continúa la siguiente etapa de automatización de la Red de Estaciones Hidrometeorológicas – Fase 2 (60%).

El nuevo software –Rainbow5- para tratamiento de los datos provenientes del radar meteorológico de la ACP está en funcionamiento en la Gerencia de Hidrometeorología de ETESA.

Inició el programa de entrenamiento de los pronosticadores meteorológicos de la Gerencia de Hidrometeorología de ETESA en el Centro de Pronósticos de Washington, Tropical Desk (40%).

Se realizó una reingeniería de la página web de Hidrometeorología, la cual le ofrece mayor información y dinamismo de consulta al usuario.

Se ha puesto en marcha el horario 24/7. Se trabaja 24 horas al día 7 días a la semana en la Unidad de Vigilancia y Pronóstico Meteorológico – ETESA.

Además del pronóstico diario, se ha implementado un pronóstico semanal (7 días), el cual se actualiza diariamente y se divulga en la web.

Se han implementado 3 boletines meteorológicos diarios de las condiciones del tiempo.

Se confeccionan y divulgan avisos meteorológicos diarios según la necesidad y la ocurrencia de eventos meteorológicos adversos utilizando las diferentes herramientas tecnológicas-meteorológicas disponibles; manteniendo la coordinación con SINAPROC para la respuesta oportuna.

Continúa el monitoreo de amenazas sísmicas y volcánicas, con la modernización de los equipos ([http://www.igc.up.ac.pa/index.php?option=com\\_content&task=blogcategory&id=3&Itemid=56](http://www.igc.up.ac.pa/index.php?option=com_content&task=blogcategory&id=3&Itemid=56)).

Se mantiene el pronóstico diario de los índices UV, divulgado en la web de la Universidad de Panamá ([www.igc.up.ac.pa/labfisat/lab223.htm](http://www.igc.up.ac.pa/labfisat/lab223.htm)).

La gerencia de Hidrometeorología – ETESA participa en el Foro Regional de Perspectivas climáticas trimestral y luego divulga los resultados en los diferentes sectores a nivel nacional.

La Gerencia de Hidrometeorología divulga boletines del comportamiento de EL Niño – La Niña y sus posibles afectaciones a nivel nacional.

Proyecto Tsunami: Negociación con la Unesco para establecer un sistema de Alerta para los Tsunamis.

Creación de un Centro de Alerta en caso de Tsunami para Pmá (AMP, Geociencias, Sinaproc, ACP, otras)

SAT en los ríos: Mamoni (reactivada), Tuirá, Chucunaque, Chiriquí Viejo, Quebro, Bayano. Sistema de Alerta Temprana de La Cuenca del Chucunaque, sistema de Alerta temprana Comunitario Río Chiriquí Viejo.

### **Context & Constraints:**

Limitaciones:

Los continuos cambios de personal técnico en algunas instituciones.

No existen sistemas de alerta temprana de otras amenazas diferentes de las hidrometeorológicas.

La comunidad no dispone de medios eficientes para informarse de la evolución de los fenómenos que originan las amenazas.

### **RECOMENDACIONES**

Aumentar el número de SAT con equipos automáticos de transmisión satelital.

Continuar con la capacitación de elevados estándares para el monitoreo de los SAT.

Conocer mejor el desarrollo de los diferentes fenómenos que generan las amenazas.

### **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### **Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

## Means of Verification:

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

## Description:

En los últimos dos años se han adelantado una serie de proyectos y activado algunos mecanismos de intercambio regional que han favorecido significativamente el avance de la gestión de riesgo a nivel nacional. Algunos ejemplos que se pueden mencionar son:

Intercambio de información sísmica, entre Panamá, Costa Rica y Colombia, aunque no existen acuerdos o convenios bilaterales al respecto.

Sistema de Detección de Descargas Atmosférica, adelantado entre Panamá y Costa Rica. Con esta información se pueden generar mapas de densidad de descargas, donde se pueden identificar áreas de riesgo para las descargas eléctricas atmosféricas.

El PREVDA continúa apoyando proyectos regionales de la reducción de desastre y riesgo.

Actualmente se intenta concretar el Proyecto Mesoamericano de una Red de Radars Meteorológico, donde CATHALAC es la entidad ejecutora por parte de Panamá.

Se adelante el proyecto “ Base de Datos Climáticos de América Central” (Rescate de Datos) apoyado por el CRRH-BID (RG-T1203) y ejecutado por ETESA, en Panamá.

También se adelanta un acuerdo entre PNUMA y ETESA para desarrollar el proyecto “Incorporación de Medidas de Adaptación y Mitigación del Cambio Climático en el manejo de los Recursos Naturales en dos Cuencas Prioritarias de Panamá”.

El Foro del Clima de América Central es uno de los mejores ejemplos en la cooperación transfronteriza para la reducción del riesgo y de apoyo a los mecanismos de seguridad alimentaria.

## Context & Constraints:

En el caso de la Cuenca del río Sixaola no se han dado avances.

Desconocimiento de la existencia de las Instituciones y Programas que apoyan proyectos de reducción de riesgos y vulnerabilidad.

Desconocimiento del Gobierno Central de la importancia de desarrollar políticas de estado encaminadas a la reducción de riesgo.

Un reto sería dinamizar los mecanismos de cooperación transfronterizo en el tema de reducción de riesgo.

Los investigadores y técnicos tienen la difícil tarea de crear conciencia en las autoridades nacionales para mejorar la cooperación internacional en gestión integral del riesgo.

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## Paraguay (in Spanish)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

### Level of Progress achieved:

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

## Is there a national multi-hazard risk assessment available to inform planning and development decisions?

No

### Means of Verification:

- \* No: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

### Description:

La SEN, bajo los conceptos que contemplan la Sostenibilidad del Desarrollo, emprende proyectos de Gestión de Riesgos basados en relevamientos del estado de ciudades, pueblos y comunidades indígenas analizando las capacidades de resiliencia de las mismas ante las amenazas de origen natural como inundaciones y rebordes de ríos y arroyos, sequías, incendios forestales y de campos, y tormentas eléctricas con intensos vientos, principalmente. Estos análisis también consideran las amenazas antropogénicas y las amenazas de enfermedades contagiosas como el dengue y la fiebre amarilla, por citar dos casos recurrentes.

Para un alcance nacional será necesario contar además con herramientas básicas y elementales como:

- plan de ordenamiento territorial,
- planes de manejo de cuencas hidrográficas,
- base de datos sobre catastros urbanos y rurales,

que permitirán un mejor aprovechamiento de la información recogida y procesada de las poblaciones vulnerables y los tipos de eventos que las afectan.

### Context & Constraints:

La SEN es una Institución del Gobierno Central que se caracteriza por trabajar en forma multisectorial con los gobiernos políticos sub-nacionales como las Gobernaciones Departamentales y los Gobiernos Municipales, en conjunto con las otras instituciones centrales como ministerios y secretarías de estado, coordinando principalmente las acciones de respuesta y atención a las emergencias declaradas. Desde el año 2008, en coincidencia con la asunción del nuevo gobierno, la cosmovisión de la SEN ha evolucionado hacia la Gestión del Riesgo, teniendo como paradigma la Sustentabilidad del Desarrollo, buscando la disminución de riesgos y desastres, trabajando desde la prevención, pasando por la mitigación, la respuesta ante la emergencia, la rehabilitación, la recuperación temprana y la reconstrucción. Para esto se rige de la Ley 2615/2005, que instituye la conformación de comités de emergencia departamentales y municipales, como puntos focales de intervención y trabajo coordinado. A pesar de este respaldo legal, la conformación de estos comités de emergencia aún no ha llegado a la totalidad de los casos.

## Priority 2: Core indicator 2

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### Level of Progress achieved:

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

## Are disaster losses systematically reported, monitored and analysed?

Yes

### Means of Verification:

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

### Description:

La SEN coordina los sistemas de información y difusión de alertas tempranas, sirviéndose de datos generados por otros organismos como la Dirección de Meteorología e Hidrología, las FFAA, etc. Aún así, estos sistemas aun en un estado inicial básico, precisan de planes de comunicación, de planificación y sistematización de datos que establezcan la formación de redes entre instituciones gubernamentales, universidades, ONGs y público en general, que permitan la consulta y la difusión de información básica sobre eventos meteorológicos y amenazas.

### Context & Constraints:

Limitaciones principales: los sistemas de comunicación para la difusión no cuentan con un respaldo ante cualquier eventualidad, y no se cumple el protocolo de comunicación y funciones, en el caso de una emergencia.

Se cuenta con buenos sistemas de recolección de información pos evento, con métodos de EDAN (evaluación de daños y necesidades). También otras instituciones como el Ministerio de Salud, el Ministerio de Agricultura y Ganadería y otros, cuentan con sistemas de evaluación de impacto y relevamiento de datos.

## Priority 2: Core indicator 3

*Early warning systems are in place for all major hazards, with outreach to communities.*

### Level of Progress achieved:

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

## Do risk prone communities receive timely and understandable warnings of impending hazard events?

Yes

### Means of Verification:

\* Yes: Early warnings acted on effectively

\* No: Local level preparedness

\* No: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

### Description:

Si bien existen los sistemas de alerta temprana, se debe fortalecer esta herramienta en cuanto a las

medidas preventivas a tomar por parte de las poblaciones afectadas, y mejorar el sistema de difusión contando con medios alternativos para la comunicación antes, durante y después del evento.

**Context & Constraints:**

Las principales limitaciones se dan en los gobiernos locales que no cuentan siempre con los sistemas de difusión informativos y sobretodo protocolos de acción e intervención en el antes, durante y después de los eventos.

Se debe formar y capacitar a los puntos focales en los gobiernos locales.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

\* Yes: Programmes and projects addressing trans-boundary issues

\* Yes: Regional and sub-regional strategies and frameworks

\* Yes: Regional or sub-regional monitoring and reporting mechanisms

\* No: Action plans addressing trans-boundary issues

**Description:**

Por las características y condiciones geográficas, ambientales, naturales, sociales y culturales, el Paraguay comparte muchos aspectos comunes que propician la acción en conjunto y armónica con los gobiernos de las regiones vecinas de los países limítrofes que comparten los mismos riesgos y eventos naturales que pueden desembocar en desastres. El Paraguay ha enviado misiones y brigadas de atención a la emergencia a países vecinos como la Argentina y a otros más lejanos como Haití en los años 2009 y 2010 respectivamente..

**Context & Constraints:**

El trabajo trasfronterizo y el apoyo logístico entre países vecinos siempre ha sido eficiente y armónico, en vista a que las Instituciones multi-sectoriales han sabido trabajar en conjunto y organizadamente.

**Peru** (in Spanish)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

**Means of Verification:**

\* Yes: Multi-hazard risk assessment

\* 12 % of schools and hospitals assessed

\* 0 schools not safe from disasters (specify absolute number)

\* Yes: Gender disaggregated vulnerability and capacity assessments

\* Yes: Agreed national standards for multi hazard risk assessments

**Description:**

El ENFEN realiza evaluaciones del peligro de ocurrencia de los eventos de El Niño, que incluye amenazas múltiples en diferentes sectores.

El Programa de Ciudades Sostenible, proporciona mapas de peligros de los territorios de gobiernos regionales y locales; aunque, no se tiene estudios sobre la estimación del riesgo a escala nacional.

Evaluaciones de riesgo en el sector salud incluyen amenazas múltiples y vulnerabilidades que afectan a la salud de las personas, los servicios de salud y el entorno ambiental. La meta de "Evaluación de las condiciones de seguridad en los establecimientos de salud", se ha logrado en un 12% y se espera que al 2011 el 100% de los hospitales hayan sido evaluados mediante índices de seguridad.

Instituciones científicas como INGEMMET, IGP, SENAMHI, entre otros, están realizando estudios de identificación y evaluación de riesgos a nivel regional y nacional, los cuales están en proceso de difusión.

A escala nacional, se cuenta con el mapa de susceptibilidad por movimientos en masa del Perú, recientemente publicado por INGEMMET. A escala regional se tienen análisis de amenazas múltiples de las diferentes regiones del Perú, análisis normado por la PCM y posteriormente por el MINAM en el establecimiento de la ZEE (Zonificación ecológica económica). En el caso del MINAM, la Dirección de Ordenamiento Territorial está desarrollando proyectos a nivel de Gobiernos Regionales, en la que se realizan estudios de vulnerabilidades de la zona, estos estudios se desarrollan en los departamentos que lo solicitan. Adicionalmente se realizan evaluaciones de riesgos ambientales en áreas donde existen niveles de riesgo moderado y alto.

El país cuenta con documentos técnicos como el Manual Básico para la Estimación del Riesgo del Instituto Nacional de Defensa Civil y el Manual de Gestión Comunitaria del Riesgo, elaborado por Ciudades para la Vida, que tiene por finalidad brindar las herramientas conceptuales y metodológicas para que los diversos actores de las comunidades de base estén en condiciones de gestionar los riesgos en sus respectivos ámbitos territoriales, en el marco de los principios del Sistema Nacional de Defensa Civil.

**Context & Constraints:**

Las grandes diferencias en capacidades profesionales y de equipamiento y acceso a la tecnología de información y comunicación de los aproximadamente 1,800 gobiernos locales, requieren revisar y elaborar metodologías de estimación de riesgos más sencillas y didácticas de empleo comunal y que incorpore el concepto de género; y, otros grupos vulnerables, elaborando una norma de estimación de Riesgos.

Acerca de las bases de datos, existe una base de datos de peligros geológicos y hidrometeorológico actualizada anualmente por el INGEMMET. Cabe mencionar que la metodología de ZEE está aún en construcción y los técnicos no tienen experiencia, aplicando cada uno una metodología diferente en cada

región.

Asimismo, los niveles de ZEE (macro, meso y micro) se entienden incorrectamente ocasionando que las decisiones que se puede tomar a cada nivel no concuerden.

Contribuiría a la solución de los problemas que las entidades científicas desarrollen, en forma permanente, modelos numéricos cuantificables frente a terremoto, variaciones en la temperatura, variaciones en las precipitaciones, para contar con datos reales para el cálculo de riesgo y contar con por lo menos 30 personas capacitadas para ser Evaluadores de Hospitales.

Se debe hacer un seguimiento a los trabajos realizados por todas las instituciones que forman el SINADECI ahora SINAGR D y mayor difusión de las publicaciones de todos los resultados que existen a nivel nacional. Todas las instituciones deben contribuir con la Gestión de Riesgos de Desastres a nivel nacional.

## **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### **Are disaster losses systematically reported, monitored and analysed?**

Yes

### **Means of Verification:**

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

### **Description:**

El monitoreo, registro y disseminación de información sobre daños ocasionados, se realiza a través de una aplicación informática denominada SINPAD en la cual los Gobiernos Regionales y Locales registran la información de ocurrencias de sus áreas jurisdiccionales, apoyándose en la información ingresada en el formato de Evaluación de Daños y Análisis de Necesidades – EDAN (aprobado con Resolución Jefatural N° 263-2007), permitiendo generar una base de datos a nivel nacional para las consultas del público e instancias decisorias.

El INDECI ha publicado el año 2011 el estudio: Impacto Socioeconómico y ambiental del Sismo del 15 de Agosto de 2007, que ha sido realizado adoptando la metodología establecida en el Manual para la Evaluación del Impacto Socioeconómico y Ambiental de los Desastres, propuesta por la Comisión Económica para América Latina y el Caribe (CEPAL 2003).

Las instituciones científicas cuentan con sistemas de monitoreo permanente a nivel nacional de las principales amenazas y los diseminan periódicamente.

Existen iniciativas desde organizaciones internacionales en cooperación con entidades nacionales que vienen trabajando en el diseño de escenarios de vulnerabilidad frente a sismos en varias ciudades importantes del país.

En el Perú como el resto de los países que hacen parte del CAPRADE y que han aprobado la Estrategia Andina para la Prevención y Atención de Desastres - EAPAD se ha concertado la elaboración de un inventario histórico de desastres, ocurridos durante los últimos 30 años.

Se ha implementado un Centro de documentación virtual para la Gestión de riesgos y la prevención de desastres.

Los sectores vinculados especialmente con la respuesta como educación, salud, infraestructura de transportes y comunicaciones, producción, vivienda, protección de derechos y asistencia social, en

general utilizan la Información disponible en el SINPAD y en los EDAN regionales y locales. El Sector Salud cuenta con bases de datos sobre las pérdidas ocasionadas por los desastres, la Dirección General de Epidemiología que actualiza a nivel nacional la información de enfermedades de obligatorio cumplimiento como son las IRAs, EDAs, Neumonías, enfermedades metaxenicas y otros; también se cuenta con datos relacionados con la infraestructura sanitaria.

**Context & Constraints:**

El mayor reto es obtener información en tiempo real para disponer la atención oportuna y adecuada; las limitaciones identificadas se evidencian en la disponibilidad de recursos técnicos y permanencia de recursos humano capacitado, así como la correcta evaluación de daños, especialmente a nivel de Gob.Reg. y Locales.

Es importante establecer lineamientos grales., para la implementación tecnológica y permanencia del recurso humano capacitado; que facilite el acopio y disseminación de información sobre daños por emergencias o desastres.

Se necesita mayor difusión de la información que generan los sistemas de monitoreo.

El conocimiento y la utilización del Sistema de Información para la Prevención y Atención de Desastres (SINPAD), del Centro de documentación virtual para la Gestión de riesgos y la prevención de desastres y del Inventario Histórico de Desastres, por parte de las autoridades y técnicos de los Gobiernos Regionales y Locales, es restringido.

El INDECI realiza evaluaciones de las pérdidas ocasionadas por desastres. Se cuenta con bases de datos sobre amenazas, daños y pérdidas proporcionadas por INDECI y algunas instituciones (INGEMMET); no se ha elaborado una estrategia para que esta información sea trabajada adecuadamente, ni se ha propuesto oficialmente el empleo de la metodología establecida en el Manual para la Evaluación del Impacto Socioeconómico y Ambiental de los Desastres propuesta por la Comisión Económica para América Latina y El Caribe (CEPAL 2003) que el INDECI viene utilizando. Hace falta, en los actores locales mayor capacitación, información e identificación en el proceso de administración de información de desastres.

Para superar esta problemática se requiere efectuar un mapeo, lo que permitiría identificar si la solución pasa por: capacitar, dotar de equipos de computo o por que la ampliación de las líneas de telefonía e internet llegue a la localidad

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

**Description:**

Se ha creado la Red Nacional de Alerta Temprana Ley 29664

Existe un Sistema de Alerta Temprana para Tsunamis en toda la costa del Perú, a cargo de la Dirección de Hidrografía de la Marina de Guerra del Perú.

Además existen SAT en algunas otras regiones como:

Piura – Inundación

Lambayeque- Inundación

Arequipa- Volcán

En este año los Sistemas de Alerta Temprana se han activado 2 veces: 10 de marzo Alerta Tsunami y 26 de febrero para el Simulacro Nocturno.

En la generación de una Alerta Meteorológica, el SENAMHI proporciona avisos que son enviados al INDECI, organismo rector en materia de prevención de desastres y a los Gobiernos sub nacionales a quienes les corresponde organizar a la población.

Los SAT tienen limitaciones de carácter económico, técnico y de difusión, especialmente por la multiplicidad de eventos que ocurren en el país y por la diversidad del territorio nacional (salvo el caso excepcional de Ica) el resto del país aun no cuenta con SAT, establecidos).

Se han realizado 03 conversatorios en las Regiones de Cajamarca, Huancayo y Cusco, donde se expusieron las experiencias de las regiones donde se han implementado Sistemas de Alerta Temprana; y se estableció y validó un modelo conceptual que recopila todas las experiencias previas a su implementación e instalación; así mismo se ha elaborado los lineamientos generales para el Sistema de Aleta Temprana modelo comunitario para Cuencas.

Se viene ejecutando precisamente un proyecto con el Gobierno Regional de Ica el cual tendría como objetivo el establecimiento de un SAT en dicho departamento. Las regiones de Tumbes, Cajamarca, Loreto, Arequipa y Tacna, tienen proyectos SAT en evaluación, mientras que La Libertad y Madre de Dios, tienen proyectos en formulación.

Se espera que con los SAT manejados por los gobiernos regionales, la población sepa cómo actuar frente a alguna alerta.

Existen sectores gubernamentales que han desarrollado procedimientos de alerta temprana, sin embargo esta situación no corresponde a la mayoría.

**Context & Constraints:**

La Red Nacional de Alerta Temprana es de reciente creación, por lo que está en proceso de diseño y posterior implementación.

Existen pocos sistemas de alertas tempranas, tanto para inundaciones, heladas y sequías, pero en la mayoría de las comunidades no está implementado. Ya se cuentan con SATs para tsunamis (Hidrografía) y para volcanes (INGEMMET, IGP), pero para otros tipos de amenazas aun no se han implementado, salvo algunos esfuerzos locales. Esto se debe a la falta de instrumentación, personal capacitado y presupuesto en la tarea del monitoreo de peligros geológicos. Se trabaja actualmente en la detección y pronóstico de las principales amenazas a nivel nacional, pero es necesaria una mayor difusión de la información a todo nivel.

Una de las principales dificultades es la multiplicidad de eventos y la característica del territorio nacional. Se requiere formular un Plan Nacional de desarrollo e implementación de Sistemas de Alerta Temprana, en el que se establezca prioridades en función a la recurrencia y a sus impactos económicos y sociales. El reto es que los representantes de los gobiernos locales y regionales, incorporen la gestión de riesgos de desastres en sus planes de gobierno, asignen la partida presupuestaria correspondiente; coordinen con INDECI e instituciones científicas, apoyen la evaluación de peligros y realicen una adecuada evaluación de riesgos de su región. Finalmente que se elaboren los correspondientes SAT, con planes de respuesta ante un peligro.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

**Description:**

El Perú participa en distintos mecanismo y espacios de coordinación subregional y regional vinculados a la reducción de riesgos de desastres:

El CAPRADE viene implementando la EAPAD, aprobada mediante la Decisión 713; en la cual se consideran Programas y proyectos que abordan las cuestiones transfronterizas, que se vienen ejecutando como el Programa Ciudades Sostenibles.

En el desempeño de la Presidencia del CAPRADE, ha promovido la conformación del Foro de Coordinación y Cooperación de los Mecanismos Subregionales de Gestión del Riesgo de Desastres, integrado por CDEMA, CEPREDENAC, El REHU y CAPRADE, a los que se ha unido últimamente México, como país invitado. Actualmente desempeña la función de Coordinador del Foro.

También participa en la Asociación Iberoamericana de Entidades Gubernamentales de Protección y Defensa Civil, desempeñándose el cargo de Secretaría General, en cuya función como Secretaría Técnica, ha venido impulsando la aprobación de la Estrategia Iberoamericana para la Gestión del riesgo de Desastres.

En la OEA, se ha constituido un Grupo de Trabajo relacionado a los Mecanismos existentes sobre Prevención, Atención de los Desastres y Asistencia Humanitaria entre los Estados miembros.

Participamos también en el Proyecto Multinacional Andino: Geociencias para las Comunidades Andinas, en la comisión Permanente del Pacífico Sur, entre otros.

Para el fenómeno de El Niño se tiene al ERFEN que lo organiza la Comisión Permanente del Pacífico Sur - CPPS. Un ejemplo de trabajo fronterizo se realizó en la frontera entre Perú y Ecuador el 2006, el Instituto Geológico Minero y Metalúrgico (INGEMMET) y las instituciones representativas del Ecuador realizan un trabajo conjunto en la Cuenca Chira Catamayo y Puyango - Tumbes, sobre la evaluación de peligros geológicos.

En ejecución el Memorándum de Entendimiento para el proyecto N° SEDI/AICD/ME/306/09 "Programa de Reducción de Desastres para el Desarrollo Sostenible en las Ciudades de Piura (Perú) y Machala (Ecuador).

En el marco del acuerdo de Cooperación y Ayuda Mutua en el campo de la Gestión de Riesgo, Prevención y Atención de Desastres entre los Gobiernos de Perú y de Bolivia (sesión del 28 de octubre de 2010), se han creado 2 Comités de Frontera Perú Bolivia, para realizar trabajos conjuntos de prevención en la zona de frontera y desarrollar mecanismos de asistencia mutua para casos de desastres y emergencias. Éstos Comités serán coordinados por las respectivas Cancillerías.

**Context & Constraints:**

La necesidad de contar con un mecanismo regional que permita la cooperación internacional en caso de

desastre, ha impulsado a los Estados y organismos internacionales vinculados a la materia, a proveer y/o establecer canales de coordinación que permitan intercambiar experiencias y conocimientos en torno a la gestión de la ayuda humanitaria internacional.

En ese contexto, del 26 al 27 de abril del presente año se realizó en la ciudad de Quito, la IV Reunión Regional sobre Mecanismos Internacionales de Ayuda Humanitaria, en la que ha participado el Perú.

Existe un proyecto de Desarrollo de Capacidades Binacionales para la Reducción de Riesgos de Desastres, entre Perú y Ecuador, sin embargo falta llevarlo a la práctica.

Sería importante realizar un proyecto más integral que vaya desde la identificación, evaluación de peligros geológicos, concientización, capacitación y preparación de la población ubicada en las fronteras entre Perú y Bolivia, países que por su ubicación en los andes comparten un alto riesgo a peligros geológicos. Todo ello en coordinación interinstitucional con los organismos involucrados de ambos países y la población del lugar.

Los proyectos binacionales como tales, requieren equipos que trabajen de manera integrada de ambos países, articulando esfuerzos para la consecución del proyecto.

No bastan solo los lineamientos, se requiere concretar esas directrices en actividades específicas y desarrollo de capacidades.

Los proyectos deben contar con presupuesto importante para las evaluaciones correspondientes y considerar intercambio de expertos de ambos países a fin de poder elaborar un trabajo integrado.

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## Saint Kitts and Nevis (in English)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

#### Level of Progress achieved:

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

#### Is there a national multi-hazard risk assessment available to inform planning and development decisions?

Yes

#### Means of Verification:

\* No: Multi-hazard risk assessment

\* 0 % of schools and hospitals assessed

\* 0 schools not safe from disasters (specify absolute number)

\* No: Gender disaggregated vulnerability and capacity assessments

\* No: Agreed national standards for multi hazard risk assessments

#### Description:

Multi-hazard Post Hurricane Georges risk assessment for key sectors was undertaken in 2001, and now needs to be updated. All (100%) schools and hospitals were assessed during that 2001 evaluation. Hospitals and other public health facilities were assessed in 2009.

#### Context & Constraints:

There is need to undertake an up to date hazard vulnerability and risk assessment on St. Kitts and Nevis. This will require significant financial resources and supporting expertise. At present, there are significant aspects of planning and development activities with regard to DRR that are not informed by current data.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

\* No: Disaster loss database

\* No: Reports generated and used in planning

**Description:**

A Disaster loss database (mainly hard copy files) is maintained and disaster losses are reported, monitored and analysed. The reports generated are used for planning purposes.

**Context & Constraints:**

The Database is not systematic. Data is normally collected post event. There is need to move to establish electronic databases as a matter of policy.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

\* No: Early warnings acted on effectively

\* No: Local level preparedness

\* No: Communication systems and protocols

\* No: Active involvement of media in early warning dissemination

**Description:**

Risk prone communities receive timely and understandable warnings of impending predictable hazard events, e.g hurricanes. While there is active involvement of media in early warning dissemination, and early warnings are generally acted upon, there is need for further enhancements relative to Communication systems and protocols.

Generally, the respective communities prepare for the impending disaster, following early warnings.

**Context & Constraints:**

There is need to establish a mechanism to address unpredictable hazards e.g. Tsunamis and Technological hazards

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues
- \* No: Regional and sub-regional strategies and frameworks
- \* No: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

**Description:**

St Kitts & Nevis participates in regional and sub-regional DRR programmes and projects., such as -  
- : Programmes and projects addressing trans-boundary issues  
-: Regional and sub-regional strategies and frameworks  
-: Regional or sub-regional monitoring and reporting mechanisms

Programmes are in place to reduce communicable diseases example H1N1 and Dengue. The Ministry of Health is in partnership with the PAHO and WHO to prepare for and respond to related threats. There is on going monitoring at the community and national levels, data from which is included in regional and sub-regional arrangements and protocol, in keeping with international standards.

Action plans are developed for addressing trans-boundary issues as they emerge.

**Context & Constraints:**

There is need for training in trans-boundary health issues

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**Saint Lucia** (in English)

## Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

### Level of Progress achieved:

2 - Some progress, but without systematic policy and/ or institutional commitment

### Is there a national multi-hazard risk assessment available to inform planning and development decisions?

Yes

### Means of Verification:

\* Yes: Multi-hazard risk assessment

> Status of Hazard Maps, Vulnerability Assessments and Digital Maps for Saint Lucia (2003)

[http://www.preventionweb.net/files/13471\\_saintluciahmvdadm.pdf](http://www.preventionweb.net/files/13471_saintluciahmvdadm.pdf) [PDF ]

> TAOS Statistical Analysis Package (TSAP) Report for Saint Lucia (2005)

[http://www.preventionweb.net/files/13471\\_stluciatsap.pdf](http://www.preventionweb.net/files/13471_stluciatsap.pdf) [PDF ]

> Saint Lucia Risk Register (2006) <http://stlucia.gov.lc/nemp/general/NationalRiskRegister2006.pdf>

> B-Tool Assessment Report (2009) <http://stlucia.gov.lc/nemp/general/BToolReport.pdf>

> Bench Marking Tool (2009) <http://stlucia.gov.lc/nemp/general/BtoolFAQ.pdf>

\* Unknown % of schools and hospitals assessed

\* Unknown schools not safe from disasters (specify absolute number)

\* No: Gender disaggregated vulnerability and capacity assessments

\* No: Agreed national standards for multi hazard risk assessments

### Description:

The importance of the vulnerability assessments and other tools identified in the previous 2007-2009 HFA report are recognized but the responsible agencies are faced with human capacity and other resource constraints which have affected their ability to utilize these.

Some risk assessments have been conducted but not all hazards have been mapped for the country. Also the resolution (1:25,000) of some of the available maps may not be appropriate for the required level of decision-making.

Some schools and hospitals have, been assessed for some hazards.

### Context & Constraints:

The development of multi-hazard risk assessments may be constrained by the unavailability of requisite resources; however, human capacity constraints may be overcome through training.

Further, development planners need to be motivated to utilize developed risk assessments to inform their decision making.

There is also need for the sensitization of policy makers and middle managers to the importance and need for DRR.

## Priority 2: Core indicator 2

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### Level of Progress achieved:

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Are disaster losses systematically reported, monitored and analysed?**

No

**Means of Verification:**

\* No: Disaster loss database

\* No: Reports generated and used in planning

**Description:**

The Saint Lucia Met Service (SLMS) provides a 24 hour weather monitoring and forecasting service supported by the National Hurricane Center in Miami and other regional and international weather institutions and networks. The SLMS maintains an archive of weather data collected from multiple manned and automatic platforms in various time scales (minutes, hourly, daily, etc). Comprehensive archive of local effects e.g. floods level and area, extent of wind damage (area and severity) etc need to be established. Weather data is disseminated on various networks in accordance with established regulations. Improvements in local dissemination are necessary especially in real time.

The Seismic Research Centre (SRC) based at the University of the West Indies in Trinidad monitors seismic (volcanoes and earthquakes) activity in Saint Lucia. There are 7 seismic monitoring stations on the island. The SRC archives seismic data which is available online. A local database/archive of seismic activity would improve the current system.

Work towards establishing a Tsunami Early Warning System is currently ongoing at the local, regional and international level. A Tsunami National Focal Point and Contact Point have been identified and efforts are ongoing for establishing community level warning mechanisms and protocols, which should be completed soon. Currently there are two wave and sea level monitoring stations within Saint Lucian territorial waters one of which is owned by the French government. Data from these sensors is expected to all feed into the Global Tsunami Monitoring Network.

The Ministry of Agriculture, Animal and Plant Quarantine Department has a system in place to deal with biological risks.

The Ministry of Health has a surveillance system in place for monitoring for infectious diseases.

**Context & Constraints:**

Comprehensive national multi hazard database / archive should be established with protocols and mechanisms to inform the local and regional DRR effort.

Mechanisms for the systemic research, recording and analysis of the hazards which have impacted Saint Lucia and the impacts of these hazards need to be established.

Effort should be made to encourage Saint Lucian graduate and under-graduate students to undertake research focused on disaster mitigation, response and preparedness.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* No: Active involvement of media in early warning dissemination

**Description:**

A functional early warning system is in place for weather related hazards and volcanoes down to the community level; however, this level of functionality should apply to early warning of other hazards. A comprehensive multi-hazard early warning system needs to be established to address all deficiencies in current systems. Although efforts are afoot to establish an early warning system for tsunami on a national scale and for floods due to rain on a community level. These are both being pursued under regionally promoted projects. Some monitoring of infectious diseases is currently being undertaken.

**Context & Constraints:**

Early warning systems is not applicable to all hazards and the country is challenged by the unavailability of adequate resources (human and financial) to establish and maintain a multi hazard (including monitoring for infectious diseases) early warning system.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues  
> Comprehensive Disaster Management (2005)  
[http://www.cdema.org/index.php?option=com\\_content&view=category&layout=blog&id=62&Itemid=81](http://www.cdema.org/index.php?option=com_content&view=category&layout=blog&id=62&Itemid=81)
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

**Description:**

Regional co-operation exists in disaster risk reduction, as Saint Lucia is a member of the Caribbean Disaster Emergency Management Agency (CDEMA) a regional disaster management organization. A security agreement 'the Regional Security System (RSS)' also provides security and other support in disaster response. An MOU with Martinique caters for the provision of air-lift for medical evacuations from Saint Lucia to Martinique and other such air services by the Martinique military.

Seismic activity in Saint Lucia and the other CDERA Participating States is being monitored by the Seismic Monitoring Unit in Trinidad.

Avian Influenza (and other infectious diseases) monitoring and testing is being conducted on a regional basis by the Pan-American Health Organization (PAHO); thus the confirmation of the initial suspicion of any outbreak is done by this regional agency.

Regional and international institutions such as the Organization of Eastern Caribbean States (OECS), the Caribbean Development Bank (CDB), the United Nations Development Program (UNDP), the Canadian International Development Agency (CIDA), etc. have undertaken regional programs and projects with DRR themes encouraging collaboration and shared learning.

**Context & Constraints:**

Financial resources to sustain and improve the existing systems remain a challenge for national governments.

## Turks and Caicos Islands (in English)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

**Means of Verification:**

- \* Yes: Multi-hazard risk assessment
- \* 80-85 % of schools and hospitals assessed
- \* 25 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

The 2008 Hazard and Vulnerability Assessment (HVA) that was conducted in the TCI did not focus in any great deal on Schools hence the uncertainty of the exact amount of school that were assessed. Only portions of the HVA have been adopted in the national framework, with specific to the use of rain fall flood maps to inform the Physical Planning Board. The majority of schools are located in flood prone areas, but recent refurbishments works have reduced susceptibility to wind and earthquake hazards.

**Context & Constraints:**

Available data from the HVA is not readily useable in practical applications. Future studying that are to be conducted should take into consideration the user friendliness of the end product.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

1 - Minor progress with few signs of forward action in plans or policy

**Are disaster losses systematically reported, monitored and analysed?**

No

**Means of Verification:**

\* No: Disaster loss database

\* No: Reports generated and used in planning

**Description:**

There is a disconnect with any reports that are produced and their implications for various agencies, often resulting in reports not being fully utilized in the planning process

**Context & Constraints:**

Given the resources limitations in comparison the agency workloads, follow through on various aspects of any report can prove difficult. Any changes that are to be made must be taken over time to allow for institutional absorption of the information.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

\* Yes: Early warnings acted on effectively

\* Yes: Local level preparedness

\* No: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

**Description:**

In relation the Slow onset hazards the TCI has a very good early warning system as we relay information from the Bahamas Meteorological Office to the General Public. Regarding rapid onset hazards such as Tsunamis, though information can be received very rapidly its dissemination is very challenging using the same method of information dissemination for slow onset hazards.

**Context & Constraints:**

Means of information dissemination is primarily done via radio, television, email, and other forms of media. Current information dissemination infrastructure is inadequate for rapid onset hazards. Funding is currently being sort for a low cost alerting

Means of information dissemination is primarily done via radio, television, email, and other forms of media. Current information dissemination infrastructure is inadequate for rapid onset hazards. Funding is currently being sort for a low cost alerting system that can be built upon once the skeleton infrastructure is in place, allowing for the instance relaying of information once received by relevant authorities.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

**Description:**

The TCI through CDEMA is a part of the 5 year Comprehensive Disaster Management Framework for the regions participating states. The TCI receives support through the varying program but has limited absorptive capacity for the sustainability of the program at the national level

**Context & Constraints:**

See above.

**United States of America** (in English)**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

No

**Means of Verification:**

- \* Yes: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

The federal government has made substantial investments in assessments for multiple hazards, including the development of loss-estimation capabilities such as the Hazards US – Multi-Hazard (HAZUS-MH) software package. Developed by FEMA, this software incorporates current understanding of flood, wind, and earthquake hazards with inventories of structures and other data to estimate losses. FEMA also manages several additional risk analysis programs and quality data products, such as Risk MAP, to assess the impact of natural hazards and advance effective strategies for reducing risk. These programs further the U.S. Government’s objective to “strengthen nationwide preparedness and mitigation against natural disasters” by directly supporting community risk assessments and multi-hazard mitigation planning at the local level.

Supported by several federal agencies, geo-spatial data, hazard mapping analysis, and information on environmental change are important tools that the federal government strives to provide local decision-makers in order to inform land use planning and hazard mitigation activities. Furthermore, in order to make the potential impacts of hazards more real to state and local decision-makers and the public, scenarios for specific high-impact natural hazard events have been developed for a number of cities.

**Context & Constraints:**

Considerable investment is required to fully implement risk assessment capabilities across the country.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

**Description:**

Under the Stafford Act and other legislative mandates, responsibility for monitoring and issuing alerts for individual hazards is delegated to specific federal agencies. Significant capabilities exist for monitoring networks, data archiving and rapid dissemination to provide situational awareness for emergency responders and the public at large. For example, the Department of Transportation (DOT) operates the Crisis Management Center (CMC) 24/7 to provide situational awareness of the U.S. transportation system. Through the CMC, senior leadership is notified in near-real-time of any major events impacting the transportation system, ranging from major surface transportation accidents to aviation incidents. The CMC increases resilience of the network by providing accurate information to key decisions makers on the potential need to execute DOT's authorities in response to major incidents.

Data and information are disseminated by several federal agencies and programs, such as FEMA's Risk MAP tool. Additional investments for monitoring, archiving and disseminating data on key hazards have been identified in the Grand Challenges for Disaster Reduction implementation plans developed by the NSTC Subcommittee on Disaster Reduction (SDR).

Also, multidisciplinary analysis is conducted after hazard events so that lessons learned may inform future hazard mitigation and land use planning. The U.S. National Institute of Standards and Technology has established a Disaster and Failure Studies repository for disaster and failure events to identify common vulnerabilities to which hazard mitigation strategies and technologies can be developed to reduce risk. As part of this program, post-disaster studies provide a unique environment to help determine the causes of failure and valuable data that will help design professionals improve the resiliency of infrastructure and to improve disaster risk reduction through changes in design, materials and building codes and standards.

**Context & Constraints:**

While multiple U.S. federal agencies monitor, archive and make available a significant amount of hazard loss information, the United States does not have a single national, integrated database covering multi-hazard losses. Currently, the closest thing to an integrated national loss inventory is the Spatial Hazard Events and Losses Database for the United States (SHELDUS), developed by the University of South Carolina with funding provided by the National Science Foundation. The U.S. academic community has called for the creation of a more comprehensive integrated national loss inventory and the development of consistent and comparable, locally-based vulnerability assessments to improve information for decision-makers. Creation of these tools would require considerable investment and steps to scrub private citizen information from data.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* No: Early warnings acted on effectively
- \* No: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

**Description:**

The United States has deployed early warning systems for a number of hazards, including extreme weather events, floods, and tsunamis. A prototype debris-flow warning system has been deployed for wildfire impacted areas of southern California. Early-warning capabilities exist for some well-monitored volcanoes, and plans have been made to implement a National Volcano Early Warning System. The U.S. does not currently have an early warning system for earthquakes; such a capability has been identified as an outcome of full implementation of the partially deployed Advanced National Seismic System and an earthquake early warning prototype is being developed for California. In days prior to hurricane landfall, vulnerability forecasts are provided to coastal managers based on modeled storm surge and associated erosion (Coastal Vulnerability Index), which has helped emergency managers to better target evacuation and emergency equipment.

Under its National Continuity Program, FEMA has undertaken efforts to improve and modernize the country's ability to alert the public of an impending disaster through the Integrated Public Alert and Warning System (IPAWS). Federal, state, territorial, tribal, and local government alert and warning systems will be able to integrate with the national alert and warning infrastructure, providing a broader range of message options and communications pathways for the delivery of alert and warning information to the American people before, during, and after a disaster. During the past two years, IPAWS, in close coordination with government and private sector partners, made several important advancements to the integration of public alert and warning systems, increasing the ability of local and emergency managers to provide the public with life-saving alerts.

**Context & Constraints:**

See above.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks

\* Yes: Regional or sub-regional monitoring and reporting mechanisms

\* No: Action plans addressing trans-boundary issues

### **Description:**

The United States has had transboundary interactions on hazard and risk assessment for specific hazards and cases. In a broader context, representatives of the Canadian, Mexican, and United States National Platforms for the UN International Strategy for Disaster Reduction met on 3 November 2010 near Washington, DC, and were joined by civil society stakeholders from each country. The meeting focused on progress, success strategies, and barriers with respect to implementation of the disaster risk reduction principles and goals of the Hyogo Framework for Action. The workshop participants also discussed opportunities for cross-border collaboration, efforts beyond North America, and strategies to reduce urban disaster risk. The U.S. also participated in the Second Session of the Regional Platform for Disaster Risk Reduction in the Americas.

A number of emergency preparedness agreements exist between the U.S. and Canada and the U.S. and Mexico on a bilateral basis. In 2008, the U.S. and Canadian Governments renewed and updated an Agreement on Emergency Management Cooperation. That same year, Mexico and the U.S. also renewed and updated their Agreement on Emergency Management Cooperation in cases of Natural Disasters and Accidents.

FEMA's engagements with Canada include Regional Emergency Management Advisory Committees; National Level Exercises; multilateral forums; bilateral training; and the secondment of a Public Safety Canada liaison at FEMA. FEMA's cooperation with its Mexican counterpart, Protección Civil de México (PCM), includes participation in meetings of the U.S. – Mexico Border Governors Conference Emergency and Civil Protection Work Table, bilateral training and exercise initiatives, and the Mexico-United States Emergency Management Working Group.

The U.S. also provide tsunami warnings for many nations bordering the Pacific, Atlantic and Caribbean Basins through NOAA's Pacific Tsunami Warning Center and shares hazard data with other countries and global partners through the Global Earth Observation System of Systems and the International Charter for Space and Major Disasters, among other mechanisms.

### **Context & Constraints:**

See above.

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## **Venezuela, Bolivarian Rep of** (in Spanish)

### **Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### **Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

**Means of Verification:**

- \* Yes: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

Existen en Venezuela sectores que han desarrollado una metodología de evaluación de riesgos, que tiene alcance nacional, este es el caso de las instituciones relacionadas con eventos hidrometeorológicos y geológicos.

En el marco de la derogada Comisión Nacional de Gestión de Riesgos se elaboró una metodología para evaluar riesgos hidrometeorológicos, que incluye amenazas y vulnerabilidades físicas, atendiendo a las regiones hidrográficas del país. Existe una base de datos hidrometeorológicos (amenazas) por parte del Servicio de Meteorología de la Aviación y del Instituto Nacional de Meteorología e Hidrología (INAMEH), que se alimenta de la red nacional de estaciones meteorológicas. Dicha información se difunde a las instancias de toma de decisiones y a las comunidades.

El sector salud está ejecutando el “Programa Nacional de Hospitales Seguros frente a Desastres”, se han dictado dos cursos para evaluadores de hospitales seguros y se han evaluado seis hospitales en la región Capital, con una metodología concensuada de alcance nacional.

La DNPCAD ha elaborado y establecido, para uso de las direcciones estatales y municipales de protección civil y administración de desastres, formatos únicos para: evaluaciones de viviendas, presentación de evaluaciones de riesgo y terminología sobre reducción del riesgo de desastres. Aunque se realizan evaluaciones de riesgo para todos los sectores, las mismas no son elaboradas con una metodología de valoración cuantitativa.

El principal reto en esta materia recae sobre las instituciones que proveen datos sobre la vulnerabilidad (de carácter ambiental, físico, social, económica, entre otras) y su articulación con aquellas que recopilan, analizan y difunden información sobre las amenazas. Adicionalmente, las evaluaciones están disponibles para las instancias decisorias de organizaciones sectoriales y no para las comunidades organizadas, siendo necesaria la socialización de ésta información.

**Context & Constraints:**

- Construcción de una propuesta de evaluación concensuada involucrando a distintos actores.
- Inexistencia de presupuesto para ejecutar los programas existentes.
- Capacitación del recurso humano, dado que son sectores técnicos.
- Descentralización de los procesos (creación de los centros regionales para la realización de pronósticos hidrometeorológicos).
- Divulgación de los modelos existentes.
- Mejorar la coordinación interinstitucional.

## Priority 2: Core indicator 2

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### Level of Progress achieved:

2 - Some progress, but without systematic policy and/ or institutional commitment

### Are disaster losses systematically reported, monitored and analysed?

Yes

### Means of Verification:

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

### Description:

Venezuela cuenta con sistemas que monitorean, analizan, archivan y diseminan la información sobre sus principales amenazas, hidrometeorológica y geológica a saber. El INAMEH tiene en su haber una “Sala de Pronósticos Meteorológicos”, dónde se realiza el monitoreo de las condiciones meteorológicas, con el propósito de elaborar el pronóstico del tiempo que será ofrecido a la población. Además, se cuenta con una base de datos hidrometeorológicos, actualmente en proceso de actualización y modernización; herramienta que proporcionará información para la elaboración de estudios climáticos e hidrológicos de carácter preventivo.

La DNPCAD, en cooperación con la Federación de Rusia, está ejecutando el CENAPRAD, un componente científico-técnico de la ONPCAD, cuya misión es “recabar, procesar, analizar, registrar y difundir la información relativa a riesgos y desastres para contribuir a su reducción (...)”. El centro, que estará enlazado permanentemente con todos los sistemas generadores de información sobre amenazas de origen natural y antrópico del país y los sistemas de alerta temprana, tiene entre sus funciones difundir la información a las instituciones, autoridades y a la población, oportuna y eficazmente.

Como apoyo a las funciones del CENAPRAD, se instauró en Venezuela el Sistema de Inventario de Desastres (DESINVENTAR), promovido en nuestro país a través del proyecto PREDECAN de la Comunidad Andina y la Unión Europea, que permite almacenar información sobre características y efectos de desastres de origen natural y antrópico, con énfasis en el ámbito local, ocurridos en nuestro país desde el año 1530 hasta la actualidad. Así mismo, está a disposición de las instituciones y la comunidad la Biblioteca Virtual para la Prevención y Atención de Desastres (BIVAPAD) que organiza, recopila y disemina información para la mejora de los procesos de gestión de riesgos, en el país y en la región andina. La información que brindan ambas herramientas se encuentra disponible en el sitio en internet de la DNPCAD.

### Context & Constraints:

- No existe un mecanismo para la difusión de información, de manera oportuna y eficaz, entre las instituciones que estudian las amenazas y vulnerabilidades, y de éstas a la comunidad organizada.
- Mejorar los procesos administrativos para la difusión de la misma.
- Estudio sobre las vulnerabilidades.
- Avanzar en la instauración de BIVAPAD y capacitar al Recurso Humano.

## Priority 2: Core indicator 3

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

\* No: Early warnings acted on effectively

\* Yes: Local level preparedness

\* No: Communication systems and protocols

\* No: Active involvement of media in early warning dissemination

**Description:**

Existen experiencias puntuales, como las implementadas por PREDERES y Cáritas a través de DIPECHO, pero no hay una política sistemática, de alcance nacional, para el desarrollo de sistemas de alerta temprana.

**Context & Constraints:**

- Hay iniciativas creadas, con apoyo de la cooperación internacional, pero que no se mantienen, como por ejemplo las de JICA en el río El Limón y el BID en el cuenca del río Boconó.
- Involucrar a las comunidades en los proyectos (toma de decisiones, implementación, ejecución y mantenimiento).
- Replicar la experiencia a nivel nacional.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

\* No: Programmes and projects addressing trans-boundary issues

\* Yes: Regional and sub-regional strategies and frameworks

\* No: Regional or sub-regional monitoring and reporting mechanisms

\* Yes: Action plans addressing trans-boundary issues

> Plan de Acción de Saint Marc (2007)

[http://www.preventionweb.net/files/14137\\_plandeaccindesaintmarcaec.pdf](http://www.preventionweb.net/files/14137_plandeaccindesaintmarcaec.pdf) [PDF ]

**Description:**

En el marco de la ejecución del proyecto PREDECAN de la Comunidad Andina y la Unión Europea, Venezuela instauró el registro de DESINVENTAR, iniciativa que se ha mantenido, pese a que Venezuela ya no forma parte de ésta instancia.

**Context & Constraints:**

- Evitar la multiplicación de esfuerzos en las diversas instancias regionales y subregionales, que tratan los temas de reducción del riesgo de desastres.

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# Asia

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## Bangladesh (in English)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

#### Level of Progress achieved:

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

#### Is there a national multi-hazard risk assessment available to inform planning and development decisions?

Yes

#### Means of Verification:

- \* Yes: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* Yes: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

#### Description:

National risk assessment methods and tools for flood and cyclone exists. Updating of the risk assessment guidelines along with 12 guidelines as outlined in revised SOD are being developed. Besides, sector specific disaster risk reduction guidelines are being developed through DMRD's programmes which will address the changing environment, topography, population and demography context. DMRD, MoFDM has developed detailed risk assessment mapping for earthquake and tsunami for three major cities, Dhaka, Chittagong and Sylhet and planned for new eight cities, i.e. Rangpur, Bogra, Mymensingh, Tangail, Rajshai, Coxsbazar and Sirajgonj The local level risk assessment is done in most high-risk areas, by the GoB and various humanitarian actors using participatory tools. River bank erosion prediction model has been developed. Drought prone areas have been identified and adaptation options to droughts have been identified and pilot tested. Cyclone prone areas are identified and much scale afforestation programme is on-going. Action-oriented researches are underway to generate more knowledge on the impact of climate change and climate variability's at local and national levels. Progress has been made in assessing disaster and climate risk in agriculture. Some activities also initiated to assess risk in selected hospital, schools and cyclone shelters by various stakeholders led by government organizations. Awareness on air pollution and sound pollution are being taken care off by concerned agencies.

#### Context & Constraints:

Community Risk Assessment (CRA) tools has been standardized by Directorate of Relief and Rehabilitation (DoRR), DMRD and promoted the CRA as risk identification and RRAP development tool. However, some international NGOs led activities used various methodologies in local risk assessment ie VCA, PVCA etc, and encouraged to carry out by various public and private organizations. Still there has been a perceived need to standardize methodology for risk assessment and mapping. Risk assessment of

critical sectors such as health, water and sanitation, shelter, agriculture, livestock and food security is urgent priority. A digital elevation model (DEM) needs to be developed with updated contour data for better inundation information with depth during flood and storm surges which has been a planned activity under CDMP phase II of DMRD.

## **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### **Are disaster losses systematically reported, monitored and analysed?**

Yes

### **Means of Verification:**

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

### **Description:**

Disaster Management Information Centre (DMIC) has been established and anchored at Disaster Management and Relief Bhaban which are connected with district and sub-district level offices. Systems have progressively evolved to monitor, archive and disseminate key hazards information including cold wave, fog, nor'wester and high temperature by BMD and Bangladesh Space Research and Remote Sensing Organization (SPARRSO). BRAC has established 5 micro-climatic weather stations to support BMD. Early warning for flash flood & key location specific flood warning is underway supported by CDMP of DMRD. CPP also expanded 5 new upazilas in west coast with support from CDMP & covered to a total 37 upazilas. CPP modify 130 HF & VHF wireless stations in isolated islands & chars in 37 costal upazilas with support from American Red Cross. Limited progress has been made in designing indicators, data collection and analyses of vulnerabilities, though specific aspect exists such as flood related vulnerability and poverty monitoring, including location, specification on base line poverty for better understanding the coping capacity. An ongoing project led by BBS/World Bank/WFP is updating poverty maps, which would be used as one input for risk assessment at pre-crisis situation. During the reporting period, significant amount of research-based information generated on vulnerability of number of high risk districts by GoB and NGOs, which is used as a basis for a systematic monitoring of vulnerability. Early warning information generation dissemination has considerably been improved and further attention is required for wider dissemination at community level. Geological Survey of Bangladesh (GSB) has taken initiative with support from Government of Norway to strengthen its capacity for geo-hazard identification and mitigation.

### **Context & Constraints:**

Vulnerability as an important element in disaster management is increasingly been recognized for practices in recent time in Bangladesh. A national system remains underdeveloped to monitor vulnerabilities to different hazards especially the social, economic and environmental vulnerabilities which are linked to disaster impacts. However, much of the information needed for monitoring exist with different agencies often on different websites. There are current efforts by DMB to create a web portal through the DMIC to centralize this information focused on hazards and disasters. Substantial progress has been made for DMB's DMIC in delivering information. It is easily accessible through the internet; there must also be a system for the local level planners (DMCs) to access that information base who do not have internet facilities.

## Priority 2: Core indicator 3

*Early warning systems are in place for all major hazards, with outreach to communities.*

### Level of Progress achieved:

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### Do risk prone communities receive timely and understandable warnings of impending hazard events?

Yes

### Means of Verification:

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

### Description:

Early warning information generation, community message preparation and message dissemination to at-risk communities Bangladesh has well developed early warning and dissemination system for cyclone and flooding. However, based on recent experience, with the leadership of DMB the cyclone early warning system is revised in 2008 and a campaign for cyclone preparedness in ongoing. In each year, disaster risk reduction awareness campaign is progressed through observing the National Disaster Preparedness Day (NDPD), and International Day for Disaster Reduction (IDDR) in March and October, respectively. Besides, hazard specific awareness campaign and warning is placed by concerned organizations like FFWC of Bangladesh Water Development Board (BWDB) for Flood, Bangladesh Meteorological Department (BMD) for cyclone and DAE for drought. Accident Research Centre (ARC) at Bangladesh University of Engineering and Technology (BUET), along with Space Research and Remote Sensing Organization (SPARRSO), Centre for Geographic and Environmental Information Services (CEGIS), Institute of Water Modeling (IWM), Department of Environmental Science and Disaster Management (DESDM) of Patuakhali Science and Technology University (PSTU), Geological Survey of Bangladesh (GSB), University of Dhaka (DU) are engaged in disaster early warning system. Decentralized organizations, research organizations and universities are linked with disaster warning information generation and disseminations along with SAARC Meteorological Research Centre (SMRC) established at Dhaka. Union DMCs have been linked with mobile phone network and upazila DMCs are with internet and mobile phone. CPP also expanded to west coast and covering a total 37 upazilas (cyclone prone) for disaster warning information disseminations. Number of studies initiated and pilot tested during the reporting period by FFWC, BWDB to pilot people centered dissemination of flood warning and forecasting. Country has piloted 10 days predication of flood, which has created a significant opportunity for country to strengthen it multi-hazard warning. A river erosion perdition modeling has also been developed as a pilot. Tsunami early warning centre has been established at BMD in collaboration with Intergovernmental Oceanographic Commission (IOC). In addition to existing one, new three seismic observatories have been established at Dhaka, Sylhet and Rangpur. Drought warning message dissemination is done by DAE. Early Warning Dissemination through Cell Broadcasting System (CBS) tested pilot in cyclone prone Coxsbazar and flood prone Sirajgonj and planned to expand 14 coastal districts by DMB with a support from Teletalk and Grameen Phone.

### Context & Constraints:

Bangladesh is located in a delta of a three major river system, overflow of which is one of the reasons for flooding. Space based technologies are being explored. SAARC framework has created an opportunity in regional cooperation. Bangladesh flood warning information cannot be improved without establishment of regional data sharing and cooperation, considering flooding (and other hazards) as common hazard in the Ganges, Brahmaputra and Meghna basins. Simple early warning dissemination of outreach to local communities is also being tested. Tornado forecasting model need to be more enhanced and coordination is needed between BMD and SPARRSO as tornado generates in the land and provides minimum time for early warning and forecasting.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

**Description:**

Institutional arrangements exist between FFWC and neighboring countries (India Central Water Commission) upstream to limited exchange of hydro meteorological data. Arrangements are in place to facilitate information sharing regarding Avian influenza outbreaks near borders with Bangladesh.

**Context & Constraints:**

Information exchanges regarding avian influenza other trans-boundary disasters needs to be strengthened. Application of research and findings on hazards is limited. Establishment of SAARC Disaster Management Centre and adoption of SAARC Comprehensive Framework on Disaster Management created opportunity for more regional cooperation in risk assessment at regional scale and exchange of information.

**Brunei Darussalam** (in English)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

No

**Means of Verification:**

- \* No: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

Hazard and risk assessment exercise have been carried out by various agencies such as the Town and Country Planning and the Public Works Department as part of their core business in upgrading the country's infrastructure.

**Context & Constraints:**

However, national level multi-hazard risk assessment by single agency to cover all hazards and risks posed by them to the population has not been done.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

- \* No: Disaster loss database
- \* Yes: Reports generated and used in planning

**Description:**

Public demand for weather-related data has expanded the function of the Met Department, leaving some gaps unfilled. .

**Context & Constraints:**

Review recent disaster experience towards making improvements; establish inter-departmental task force or work group to deal with data management

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

No

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* No: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

**Description:**

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**Context & Constraints:**

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**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

**Description:**

Brunei Darussalam actively participate in dealing with the region's trans-boundary haze issue. In do so has increase the nation's capacity in preparing the community for prevalent haze through early warning and public awareness campaign.

The Ministry of Health (MOH) has come up with a pandemic preparedness and response plan. It also maintains a disease surveillance system. Once such system is the "Influenza Like Surveillance System" that gives warning for new emerging threats from novel strains of virus such as Influenza A (H1N1) and (H5N1).

**Context & Constraints:**

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## Georgia (in English)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

**Means of Verification:**

- \* Yes: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* Yes: Agreed national standards for multi hazard risk assessments

**Description:**

On 2 September 2010, by the No707 Decree, President of Georgia officially adopted Georgia's Threat Assessment Document for 2010-2013. The National threat register is the fundamental conceptual document, which identifies threats to Georgia's national security, presents possible scenarios of their realization and provides analysis of their probability and impact. The document has been elaborated by the interagency working groups under the coordination of the Office of National Security Council of Georgia.

Georgia's Threat Assessment Document for 2010-2013 is based on the broad understanding of security and besides the military and political threats the document evaluates socio-economic and terrorist threats, as well as natural and man-made disasters. Therefore, the document consists of 5 parts: Military Threats, Foreign Political Threats, Transnational Threats, Socio-Economic Threats and Natural and Industrial Threats and Risks.

Based on competences under the legal framework the NEA carries out: monitoring of hydro meteorological and geodynamic processes, engineer-geo-ecological conditions of geological environment and environment conditions on the territory of Georgia, in river basins, water reservoirs, in territorial waters of

the Black Sea, on the continental shelf and anthropogenic influence on the environment; Observing hydro and morpho-dynamic processes in coastline zones, implement permanent mapping activities, define risk-zones and forecast coastline developments, manage coast forming processes with engineer activities; data collection through the meteorological, hydrological, marine, snow- avalanche and other stations; data processing based on historical data; assessment of hazard risk on the community and engineer-industry infrastructure; adoption of palliative and preventive measures.

In the NEA is prepared special zoning maps of the territory of Georgia in accordance with frequency and reiteration of diverse hydro meteorological and hazardous geological processes:

1. Populated area and Urban Territories of Georgia, located in the Geological Hazardous Risk Region;
2. Landslide risk zones in Georgia and damage area;
3. Mudslide risk zones in Georgia and damaged area;
4. Areas at Risk of Flooding in Georgia;
5. Drought Prone Regions in Georgia;
6. Areas with High Wind Speeds in Georgia;
7. Risk of avalanches in Georgia;
8. Areas with intensive hail in Georgia;
9. Engineering Defense Master Plan of black sea coastline (2004); and etc.

Georgian legislation envisages local self governing unites task to collect and process the information concerning protecting people and territories from disasters

With the support of UNDP and SDC are several ongoing projects: Seismic Risk of Tbilisi City; Multi-risk assessment of Telavi Community; Rioni river flood prediction;

In Georgia is functioning Georgian-European Centre; Geodynamical Hazards of High Dams; of the Council of Europe. The Centre prepared the web-page; Risks of Large Dams; for the web-site; Be Safe Net; of Council of Europe, two Early Warning Systems, regional Atlas of natural hazards of South Caucasus, several meetings on DRR.

In the frame of NATO SfP program; Assessment of Seismic Hazard of Caucasus-Northern Turkey Energy Corridor; is developed by Institute of Geophysics.

Government of Georgia in 2009 asserted the new seismic hazard map and new building code of the country prepared by Institute of Geophysics, Seismic Monitoring Centre and Institute of Structural Mechanics

### **Context & Constraints:**

National disaster identification, determination its features and risk assessment at some level is carried out through the regular hydrometeorological observation and geological field monitoring. To implement the hidrometeorological and geological study programs for effective disaster risk reduction measures it is necessary increase hydrometeorological net, introduction of advanced technical means and research methods.

For the disaster risk reduction it is necessary to have the legal framework, which will be define the competencies between governmental/ nongovernmental, regional, local bodies and communities to ensure effective cooperation for preventive measures. This legislation will prevent duplication of responsibilities.

The local scientific potential is not used properly. The funding of DRR is scarce and nonsystematic. Monitoring systems (seismic, hydrological etc) including space monitoring are still under development. No systematic investigation on the safety of schools and hospitals has been done.

### **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

**Description:**

National Environmental Agency (NEA), is dealing with all natural hazards (except the earthquake), determines location and extension of the disasters as well as the caused losses and damages (losses of people and economy damages) through the cooperation with governmental bodies &#8211; ministry of Agriculture; ministry of economy and sustainable development, ministry of regional development and infrastructure but there is no database manageable and accessible via local IT network of NEA. The data transfer is still manually made although it is made in digital form or on paper.

M. Nodia Institute of Geophysics together with Ministry of Environment Protection and Natural Resources compiled the natural disaster database for 12 disasters which needs farther replenishment and GIS-based hazard maps of Georgia for 12 kinds of disasters and preliminary maps of risks for seismic hazard.

Georgian legislation envisages local self governing unites obligation to provide disasters statistics.

**Context & Constraints:**

The data base of diverse hydro meteorological and hazardous geological processes, extension of the disasters as well as the caused losses and damages is incomplete, because no coordinated cooperation between corresponding organizations and communities.

Creation of integrated database within the NEA as the first presumption for the Integrated Early Warning of Natural Disasters in Georgia is recommended.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

\* No: Early warnings acted on effectively

\* No: Local level preparedness

\* Yes: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

### **Description:**

NEA based on the regulation through the regular monitoring of hydro meteorological and geodynamic processes, engineer-geo-ecological conditions of geological environment and environment conditions on the territory of Georgia, in river basins, water reservoirs carries out preparation of bulletins, notes, reviews and other materials, concerning actual and forecasted environmental condition and warnings about hazardous hydro meteorological, geodynamic processes and extremely high environment pollution. The information is disseminating to state and regional governmental bodies &#8211; Ministry of environment protection and natural resources; Emergency Management Department of the Ministry of Internal Affairs, military forces of Georgia, media and other interested end-users. NEA monitors geodynamic processes on the rivers, coastal zone of Georgia, forecasts negative hazardous geodynamic processes, erosion of shoreline, elaborates of recommendations for preventive measures and implements consultative, and project works for engineering defense to mitigate and avoid the negative impacts.

The Georgian-European Centre &#8220;Geodynamical Hazards of High Dams&#8221; of Council of Europe developed the real-time telemetric Early Warning System for Dam diagnostics, which is tested now at Enguri Dam International Test Area as well as telemetric acoustic EWS for debris flow alert.

### **Context & Constraints:**

However the NEA accordance with the rule determines disaster risks and disseminates the warnings, but there is not implemented effective system of early warning, as it is necessary harmonic functioning four tools &#8211; risk assessment; observation and warning services; dissemination and communication/response planning.

In Georgia because of no coordinated measures of corresponding competencies there are challenges in delineating lines of responsibility and especially in promoting cooperation and communication/response planning, particular incorporation of community. It is necessary to improve early warning methods and spreading of forecast in the high mountain region of Georgia situated in high dangerous zone; to implement culture of voluntaries as a good practices of developed countries in the sphere of disaster risk management. To build public awareness it is necessary create the study programs on disaster risk management.

### **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### **Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

### **Means of Verification:**

\* Yes: Programmes and projects addressing trans-boundary issues

\* No: Regional and sub-regional strategies and frameworks

\* Yes: Regional or sub-regional monitoring and reporting mechanisms

\* No: Action plans addressing trans-boundary issues

### **Description:**

Under the auspices of Central Asia economic co-operation and development program and by the supporting World Bank, UN international strategy for disaster risk reduction and WMO according the Hyogo Framework for Action 2005-2015 is carrying out the disaster risk assessment initiatives in the Central Asian and Caucasus Region. The experts of NEA prepared the analytic report about disaster (flood/flashflood, landslide, mudflow, erosion, snow avalanche and drought) risk assessment and estimation, caused damages to the population and economy sectors.

NEA is involved in the Black Sea and Middle East regions component of the Flash Flood Guidance System Project, its purpose to bring meteorological and hydrological communities to work closer in improving flash flood forecasts and response. In frame of this project will exchange the regular data to provide the regional forecasting model and early warning system.

The Georgian-European Centre "Geodynamical Hazards of High Dams" of Council of Europe together with scientists from Armenia and Azerbaijan issued the "Atlas of GIS-based maps of natural hazards of South Caucasus";.

### **Context & Constraints:**

Georgia joined the convention of WMO in 1994, despite of the resolution 40th which regulates data exchange between member countries there exists problems transboundary data accessibility. It is not carrying out transboundary monitoring and study of geological hazardous events, such as earthquake, erosion, flood, mudflow, landslide and etc.

It is necessary create good coordinated regional response planning and defense system.

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## **India** (in English)

### **Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### **Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

### **Means of Verification:**

\* Yes: Multi-hazard risk assessment

\* 0 % of schools and hospitals assessed

\* 0 schools not safe from disasters (specify absolute number)

\* No: Gender disaggregated vulnerability and capacity assessments

\* No: Agreed national standards for multi hazard risk assessments

### **Description:**

The Disaster Management Act and the National Disaster Policy of India have clearly articulated the need of conducting hazard risk and vulnerability assessment. Several state governments are conducting such assessments. The scope of these assessments include analyzing exposure to various hazards, physical vulnerability, environmental vulnerability and socio-economic vulnerability based on which appropriate mitigation measures are formulated.

Apart from it; the Vulnerability Atlas prepared by BMTPC (Building Material Technology Promotion Council) provides macro scale hazard maps with risk statements of various housing types in different hazard zones, hazard risk information. Further to it; different State governments and organizations like Geological Survey of India (GSI), India Meteorological Department(IMD), Central Water Commission (CWC), National Remote Sensing Agency(NRSA), India Institute of Remote Sensing(IIRS), Indian Space Research Organization (ISRO), National Spatial Data Infrastructure (NSDI), National Agricultural Drought Assessment and Monitoring System (NADAMAS) are also generating database for disasters. Based on these available risks information; Disaster Management Plans are being prepared at state, district and local levels.

The two major Mitigation Projects (Cyclone Risk Mitigation Project and Disaster Management Support Programme of ISRO) undertaken for implementation by Government of India also provide scope to conduct in-depth risk analysis in cyclone and earthquake prone districts in select states across the country.

Geological Survey of India (GSI) has been designated as a nodal agency for conducting landslide risk analysis and state specific studies are already carried out by GSI.

Seismic Microzonation study has also been carried out in select earthquake prone cities with support from Ministry of Earth Sciences.

### **Context & Constraints:**

Limited understanding of the disaster and development realm, interdependencies across key sectors and socio-economic vulnerabilities arising out of hazard risks.

Need to enhance the capacity of policy makers and development planners to formulate appropriate mitigation measures based on such assessment.

### **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### **Are disaster losses systematically reported, monitored and analysed?**

Yes

### **Means of Verification:**

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

**Description:**

Technical Organisations are identified by Government of India to monitor, archive and disseminate data on key hazards .

India Meteorological Department-Cyclone, Earthuakes, Rainfall.

Central Water Commission- Flood data and informations relating to various dams and dam bursts.

Geological Survey of India- landslide informations

Ministry of Agriculture- drought related informations

National Spatial Data Infrastructure, Indian National Centre for Oceanic Information Services (INCOIS), Indian Institute of Remote Sensing(IIRS),National Remote Sensing Agency( NRSA)and Indian Space Research Organization (ISRO) are other such organisations which provide spatial informations on various hazards and disasters.

**Context & Constraints:**

Limited capacity in loss modeling and interpretation of hazard informations to estimate the potential risks. While Situation/Damage Reports are generated on a regular basis in a post disaster situation there is a need to analyse the informations to estimate the loss

Limited use of the hazard informations and disaster database while designing long term development programmes.

There is a need to enhance the data sharing protocols and mechanism at national and state Level.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

\* Yes: Early warnings acted on effectively

\* Yes: Local level preparedness

\* Yes: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

**Description:**

Government of India has identified key departments and organisations to provide early warnings on different natural hazards.

Cyclone warnings- India Meteorological Department  
Flood Forecasting and Warning- Central Water Commission  
Tsunami and Storm Surge-Indian National Centre for Oceanic Information Services  
Communication Hub -set up by Indian Space Research Organization and connected to strategic nodes placed at national and state level.

Respective state governments have set up their emergency control rooms/ Operation Centers and early warning communication systems (audio, video and data communication facilities) to reach out to vulnerable districts and communities.

Continuous efforts are being made to strengthen the last mile connectivity by imparting adequate trainings to community volunteers, Civil Society Organisations and Local Authorities.  
For strengthening community level preparedness Non Governmental Organisations are working at the local level.

Many State Governments are in the process of setting up of Inter Agency Coordination Mechanism to accrue maximum benefits from all the efforts put in by various partners for disaster management. Corporate Sectors are also involved at the local level for disaster response, preparedness and mitigation efforts.

**Context & Constraints:**

Though the institutional mechanism for hydro meteorological hazards are in place the major challenge lies in establishing connectivity with the last mile. Efforts are being made to strengthen the capacity of the States and Districts in setting up local level early warning systems. Mechanism for interpretation of warnings as well as data sharing protocols need to be further improvised for effective early warning dissemination.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues
- \* No: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

**Description:**

The country hosts the SAARC Disaster Management Centre which aims to put in place a regional disaster management system to reduce disaster risks. The Disaster Management Framework developed by SDMC tries to address the emerging disaster risks in the region through certain appropriate strategies like

strengthening of Early Warning System, Regional Risk Assessment, Sharing of knowledge and informations and Training and Capacity Building.

The SDMC is already carrying out a Regional Risk Assessment which will help to develop a better perspective of regional and trans boundary risks and its impact on India.

SDMC is also promoting sharing of Knowledge and informations among the SAARC countries and has set up the SAARC Disaster Knowledge Network.

**Context & Constraints:**

There is a need to strengthen the inter country coordination and cooperation mechanism to strengthen the early warning system, knowledge and data sharing.

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## Indonesia (in English)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

**Means of Verification:**

- \* Yes: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

Several risk assessment efforts have been initiated at the national as well as local levels in an adequate manner. Several relevant ministries and agencies have also conducted risk mapping and analysis in accordance with their specific tasks and responsibilities, for instance the Agency for Meteorology, Climate and Geophysics (BMKG) for meteorological, climate and geophysical hazards, the Geological Agency (PVMBG/ESDM) for volcanic and land mass movement hazards, the Ministry of Public Works (PU) for flood hazards, and so forth. Unfortunately, some of these hazard analyses have not been enriched with vulnerability and capacity information of the community. Nationally there has only been one comprehensive risk analysis that was conducted by BNPB and the National Planning Board (Bappenas) with a simple methodology that resulted in comparative risk index for district/city level, which was later used in the formulation of the NDMP and NAP-DRR.

Risk analysis at the national level has not been supported with national standards in risk map making. Also, it is difficult for the regions to access the national risk map available at the central level. The existing risk maps need to be detailed and integrated into spatial planning to guide the local development planning with risk reduction considerations.

**Context & Constraints:**

In general the BNPB and many BPBDs still face limitations in terms of resources. The capacity of the human resources has not been sufficient and there is also budget constraint and gross lack of the required facilities and infrastructures. Disaster Management Study Centers at universities in the regions, which are expected to support the capacity building of BPBDs, have not been well developed. The involvement and participation of the relevant stakeholders in the regions can be considered as not yet significant. In addition to the lack of understanding of disaster risk reduction and disaster management issues, there have yet to be uniformity in the terms and concepts of risks, risk maps, risk analysis, risk map elements, risk analysis parameters and relevant other things. Disaster-related information conveyed to the media and the public is often convoluted since it is not systematic and the language used is often too technical.

It is obvious that capacity development is greatly needed for risk analysis and mapping both for central and local level stakeholders. In addition to that, there needs to be a good socialization strategy and effort to encourage the people, local government and local stakeholders to become more proactive in accessing data and information related to disaster risks and other relevant data.

It is also necessary to build the capacity of the communities in understanding hazard and risk maps, risk analysis, etc. The media needs to be empowered to package and convey information that is valid and systematic and do not cause confusion among the people. In order that the general public can access easily and understand disaster-related information, such information needs to be standardized and made easy. Once socialization has been done, risk assessments need to be integrated into spatial planning to support risk sensitive development planning.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

\* Yes: Disaster loss database

\* No: Reports generated and used in planning

**Description:**

The system to monitor, store and disseminate hazard and vulnerability data has been available in government technical Ministries/Agencies in many areas to cover remote areas. All kinds of media and information technology have been used in information dissemination, including the radio, mass media, short message service broadcast and social networks such as the Facebook and Twitter. Although the reporting format and type of information available are not uniform, based on the needs of the different government agencies, the difference does not affect significantly dissemination of information. BNPB has

recently developed the Indonesian Disaster Data and Information (Data dan Informasi Bencana Indonesia/DIBI) but it has yet to be maximally utilized by the different state ministries.

**Context & Constraints:**

One of the constraints faced is that the integration of all early warning systems hosted by the different government agencies has not been optimal. Moreover, there has not been any legal instrument that could serve as an umbrella that regulates the policy related to the monitoring, storing and dissemination of disaster data. Data facilities and infrastructures also need to be improved, besides the human resources tasked with the management of disaster data and information.

The DIBI system developed by BNPB needs to be improved and socialized in a more rigorous manner. The government also needs to develop inter-sectoral integrated network that will engage all the ministries and agencies in the provision of hazard and risk information, if possible through the existing DIBI system. Policy needs to be formulated to enhance the implementation of the DIBI system and strengthen coordination among institutions. Budget allocation from the national budget is needed as well as support from other donor organizations to enhance the DIBI system, including through the provision of facilities, infrastructures and the required human resources. Moreover, guidelines for risk mapping have yet to be formulated so that DM institutions in the regions will be able to support risk sensitive development planning.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* No: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

**Description:**

Early Warning Systems (EWS) practices have demonstrated clearer distribution of roles and coordination among the sectors/actors in disaster management. Several provinces in highly prone areas have even developed standard operating procedures for EWS and emergency response in their areas. EWS for nearly all main hazards have been developed by the relevant ministries/agencies, particularly for major hazards such as flood, tsunami, extreme weather, extreme waves, volcanic eruption and forest fires. Several Early Warning Systems have reached the community such as EWS for volcanic eruption and flooding in several places. At the national level, the government is in the process of developing a President Instruction on the strengthening of EWS structure (at the central level) and culture (at the level of local government, university and community).

**Context & Constraints:**

One of the obstacles encountered is the lack of common understanding of the importance of early warning systems that reach to the lowest level of the society. The monitoring of EWS instruments and their operations as well as maintenance have not been done as best possible. There have only been a handful of provinces and districts/cities that have developed and implement Standard Operating Procedures for EWS in their regions. Currently the national government is in the process of developing a grand design for multi-hazard early warning system. The challenge is in the media infrastructure and communication facility in remote areas that is often lacking or not functioning optimally due to technical factors or lack of maintenance.

In future more support in the form of resources for the development of multi-hazard EWS needs to be mobilized. Collaboration with other parties such as the private sector in matters related to media and telecommunication needs to be built. The civil society needs to be empowered to participate in risk information dissemination and the development of community-based EWS. Emphasis needs to be given to the science and technology aspects of EWS, and their regulatory aspect as well as social aspect to reach communities living in hazard prone areas. The regulations developed should also cover EWS Standard Operating Procedures for areas that are highly at risk.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

**Description:**

There been substantial progress in matters related to cross-border risk analysis. Several districts around Merapi Volcano in the border between Central Java-Yogyakarta have implemented joint cross-border risk mapping. In the period between 2010 and 2011 more joint cross-border risk assessments have been conducted among districts bordering Mount Bromo and in the mapping of the Palu-Poso river catchment areas.

Cooperation has been established within the framework of ASEAN countries and Indian Ocean countries (IO TWS for risk assessment and disaster management). In 2011 the national SAR agency, BASARNAS has hosted INSARAG meetings and International SAR Forum. Cross-border information sharing has also been done through regular meetings, AHA Center, ICG/IO TWS, PTWC, INSARAG, AADMER, AIEC, ARF

Direx and non-combat joint military exercises that involve militaries from ASEAN member countries.

**Context & Constraints:**

Although many districts/cities, agencies and institutions have conducted independent risk assessments, joint detailed risk assessments for disaster risks that may simultaneously affect different provinces have yet to be implemented. International agreement such as that through the AHA Center has yet to be signed, although consensus has been reached. The involvement of local NGOs and communities in risk assessments has also not been optimal.

In future commitment needs to be built among policy makers in hazard-prone areas, and regional/cross-border cooperation for risk analysis and disaster risk reduction in general needs to be increased. Collaborative ventures need to be expanded not only for capacity building but also for cross-border joint risk analysis. Engagement of the NGO communities and mobilization of resources for risk analysis need to be strengthened by the government.

## Japan (in English)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

**Means of Verification:**

- \* Yes: Multi-hazard risk assessment
- \* 97.4 % of schools and hospitals assessed
- \* 33% schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

Japan has carried out hazard mapping with regard to tsunamis, tidal waves, flooding, landslides, volcanic eruptions and earthquakes. Progress has also been made in the development of dynamic flood hazard maps which predict how the flooding will spread over time. The scale of these maps varies from 1/2,500 to 1/25,000 according to purpose. Many hazard maps have been drafted by local public bodies: the Cabinet Office, the Ministry of Agriculture, Forestry and Fisheries, the Fisheries Agency, the Ministry of Land, Infrastructure and Transport and Tourism and other agencies have drawn up manuals on the subject. In addition, the 2005 revised version of the Flood Fighting Act, for example, obligates municipalities containing zones expected to be inundated as announced by the MLIT to compile a flooding hazard map

and to distribute copies of it to each household. In April 2007, Ministry of Land, Infrastructure and Transport and Tourism launched portal site which allows users to search and view various hazard maps compiled by municipalities on the Internet. About 1,137 of the 1,500 municipalities throughout Japan are the areas which have possibilities of major flood. So far, they have published and distributed their flood hazard maps as of the end of March 2010. In addition, 104 municipalities completed inland water hazard maps as of the end of September 2009. Many of the developed maps have been made available to the general public by the internet and other means.

In addition, based on the study by the Committees for Technical Investigation under the Central Disaster Management Council, the government has published assessment of damages and countermeasures in case of possible large-scale disasters including the Tonankai and Nankai Earthquakes, the Tokyo Inland Earthquakes, the Trench-type Earthquakes in the Vicinity of the Japan and Chishima Trenches, and large-scale flood in the Tokyo metropolitan area. For example, in November 2007, the result of the assessment of damages including infrastructure and human damages by the Inland Earthquake in the Chubu region and the Kinki region were made available to the public. Furthermore, in January 2009, the Committee for Technical Investigation on Large-scale Flood countermeasures, which was established in 2006, summarized and published the estimation of inundation caused by overflow of the Arakawa River or Tonegawa River in Tokyo Metropolitan area, and the assessment of damage by the surge of the Tokyo Bay in case of large-scale flood disaster.

**Context & Constraints:**

N.A.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

**Description:**

The observation, analysis and dissemination systems are in place for data on climate-related hazard, earthquake and tsunami, volcanic eruption, and river-related hazard covering for all of Japan's national territory. They help to grasp the situation of the disaster early on and promote information sharing among relevant organizations, thereby enabling quick and appropriate decision-making for emergency response operations.

Furthermore, the national government has been currently developing Disaster Information Sharing Platform, a common information sharing system with a standardized information format, where various disaster information provided by ministries and agencies, local governments, relevant organizations and residents, can be posted and freely accessed by all.

In addition, the Cabinet Office has started examination for standardization and utilization of disaster risk information since 2008, in order to make disaster risk information "visible" and promote development of environment where everyone can share such information.

**Context & Constraints:**

Intensive use of urban space such as expanding of underground space, and increase of living areas below sea level and high-rise buildings, brought us unprecedented vulnerabilities and risks. The aspects should be further understood by the public to take effective action.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

**Description:**

All of Japan's national territory is covered by early warning systems for earthquakes, tsunamis, volcanic eruptions, storms, torrential rains, sediment disasters, heavy snow, floods, inundation, tidal waves, and high surf, the Ministry of Land, Infrastructure and Transport and Tourism, the Japan Meteorological Agency and local government bodies being the main institutions involved. The organizations use 24-hour systems to carefully monitor various natural phenomena and weather conditions. The Japan Meteorological Agency has further elaborated weather warnings in units of municipalities to support judgement of the evacuation actions since May 2010.

The development of a quick and accurate communications system is essential for the effective use of early warning information. Online system linking disaster management organizations of the national and local governments and media organizations has been developed for the purpose. Radio communications networks exclusively for disasters have also been set up for connecting national organizations, firefighting organizations, local governments, residents, and designated public corporations. Furthermore, as a backup, a satellite communications system has been constructed. Simultaneous wireless communications systems using outdoor loudspeakers and indoor radio receivers are used to disseminate disaster information to residents. Tsunami and severe weather warnings are widely provided to citizens via TV and radio broadcasts.

Furthermore, Since 1 October 2007, the Earthquake Early Warning service has been started for provision through a number of media outlets such as TV and radio. The Earthquake Early Warning system was developed to provide advance announcement of the estimated seismic intensities and expected arrival time of principal motion based on prompt analysis of the focus and magnitude of the earthquake using wave form data observed by seismographs near the epicenter. In the Iwate-Miyagi Nairiku Earthquake in 2008 and Suruga Bay Earthquake in 2009, the Earthquake Early Warning System were fully utilized for people taking actions to protect themselves, stopping production machinery in factories, and securing children's

safety in nurseries.

**Context & Constraints:**

Adverse effect of an overflow of information as highly-advanced information society could lead to excessive social anxiety. Delivering information in an easily comprehensible manner should be further considered as well as the system to disseminate precise information promptly. There should be technological limitation for Earthquake Early Warning System, as in areas that are close to the focus of the earthquake, the warning may not be transmitted before strong tremors hit. Likewise, errors in estimations can be happened. These things have to be well informed and recognized to the public.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

**Description:**

Taking into account the lessons learned from bitter experience of the 1960 Chile tsunami formed by seismic activity far from Japan, the government has been making collaborative efforts with other relevant countries to establish an early warning system against tsunamis in the Pacific Ocean. Japan Meteorological Agency acts in coordination with the Pacific Tsunami Warning Center (PTWC) in Hawaii and issues a long-propagating tsunami warning. JMA operates the Northwest Pacific Tsunami Advisory Center, which provides more tailored tsunami information for countries in the Northwest Pacific region in cooperation with PTWC. From the experience of managing the tsunami caused by Chile earthquake in February 2010, Japan Meteorological Agency is improving the prediction accuracy of distant tsunamis.

**Context & Constraints:**

Global warming alters average weather conditions on a global scale, bringing negative impacts including growing potential risks of natural disasters resulting from the frequent occurrence of fierce natural events. To reduce risks from natural disasters by climate and environmental change due to development activities, fostering further efforts for taking mitigation measures in collaboration with all sectors of international society is required.

Furthermore, globalization and rapid spreading out of the economic activities by corporations tend to trigger a regional or global chain reaction of economic damages caused by a disaster in a place. Risk assessment taking into consideration of the chain reaction of the adverse impact should be further considered.

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## Lao People's Democratic Republic (in English)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

#### Level of Progress achieved:

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

#### Is there a national multi-hazard risk assessment available to inform planning and development decisions?

Yes

#### Means of Verification:

\* Yes: Multi-hazard risk assessment

> ADPC/NDMO/UNDP Lao PDR Vulnerability Assessment 2010 (2010)

[http://www.preventionweb.net/files/15958\\_adpcndmoundpvulnerabilityandassessm\[1\].pdf](http://www.preventionweb.net/files/15958_adpcndmoundpvulnerabilityandassessm[1].pdf) [PDF ]

> ADPC/NDMO/UNDP Lao PDR Hazard Assessment 2010 (2010)

[http://www.preventionweb.net/files/15958\\_adpcndmoundpvulnerabilityandassessm.pdf](http://www.preventionweb.net/files/15958_adpcndmoundpvulnerabilityandassessm.pdf) [PDF ]

\* No available assessment % of schools and hospitals assessed

\* No available assessment schools not safe from disasters (specify absolute number)

\* No: Gender disaggregated vulnerability and capacity assessments

\* No: Agreed national standards for multi hazard risk assessments

#### Description:

A joint project undertaken by Asia Disaster Preparedness Centre (ADPC) and the NDMO, funded by UNDP in 2010, undertook a comprehensive country level multi-hazard risk assessment using NDMO provided data resulting in hazard and risk mapping and assessments for the entire country. Local level assessments, planning and implementation of DRR initiatives can now be achieved by the NDMC/NDMO and line ministries throughout the provinces through utilisation of the tools developed, although resources available to the NDMO and provincial authorities remains a constraint in this area and until addressed this achievement will not be utilized to its maximum capacity and assessments at the village level will require further commitment using these tools

Shortcomings of Community Based Disaster Risk reduction (CBDRR) are also being addressed by INGOs through such initiatives as the Hazard Vulnerability and Capacity tool currently being utilised locally at the village level by the ADPC, French Red Cross, in partnership with NGO partners such as Lao Red Cross and with cooperation from the NDMO. This practice needs to be implemented as widely as possible.

Similarly Mekong River Commission (MRC) DRR office in Cambodia has conducted several Flood Vulnerability Assessment and Mapping Projects relating to Mekong DRR/DRM in Laos, Cambodia, Thailand and Vietnam. The projects were supported by the funding of several International Governments over the period 2004-2010, included local provincial authorities and populations and are intended to provide flood vulnerability indices to better manage flood and drought impacts in the Lower Mekong Basin

and are available on line at <http://www.drrprojects.net/>.

### **Context & Constraints:**

Constraints:

Resources and funding to the NDMO and line ministries is a priority to ensure that the hazard and risk mapping assessment tools are continuously utilized annually.

The Way Forward:

Inclusion of specific funding, information technology and human capacity for NDMO hazard mapping and risk assessment continuity from National through to District levels, including CBDRR initiatives. Ensure the NDMO hazard mapping and risk assessment tool is available and encourage utilisation by all DRR contributing organisations. The NDMO should now move their efforts from risk analysis to risk treatment in an effort to implement appropriate response in times of disaster.

### **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

#### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

#### **Are disaster losses systematically reported, monitored and analysed?**

No

#### **Means of Verification:**

\* Yes: Disaster loss database

\* No: Reports generated and used in planning

#### **Description:**

The Department of Meteorology and Hydrology within the Water Resources and Environment Administration (WREA) is responsible for data collection of hydro meteorological, weather and earthquake data. It is also in charge of flood and weather forecasting and dissemination. Lao PDR has a nation wide hydro meteorological network that would benefit from being upgraded. Key stations are being improved with support from the MRC Secretariat (MRCS) through the Appropriate Hydrological Network Improvement Project (AHNIP) and the Mekong Hydrological Cycle Observing System (Mekong HYCOS).

The National Disaster Management Office (NDMO) has been implementing two projects under the thematic area of risk assessment and disaster information management. Those are

- a) Establishment of Disaster Information Management System (EDIS) Project of LANGOCA Program
- b) Development of National Risk Profile Project under the project cooperation with UNDP

The EDIS project is being implemented under the Laos Australia NGO Cooperation Agreement (LANGOCA) by NDMO, ADPC and Save the Children Australia. The project is built on web based system (DesInventar) previously tested in Sayaboury province under a pilot project implemented in 2008 - 2009. This Disaster Information Management System was proven effective in Sayaboury province and commenced implementation at national level in 2010.

ADPC have trained the NDMO and key office from line ministries concerned who in turn will train PDMC and DDMC staffs for gathering and inputting of information to the data base thus allowing potentially for a

comprehensive nation wide DRR/DRM information data base and will provide particularly useful for NDMO historical collections on information, such as flood data dating from 1966 held although the Lao government will need to dedicate resources to this project to ensure data is gathered and input in a timely manner to produce the maximum benefit.

IASC uses the cluster approach to collect data and manage information and although initiatives are ongoing, no comprehensive data gathering, collating and storage system is in place to date. The vast majority of International organizations and INGOs in Lao PDR collect hazard and disaster related data to assist with individual programmes and projects, with some advanced GIS programs being utilised at the district levels to assist communities with mapping, although there is no uniform or consistent and comprehensive reporting system available.

**Context & Constraints:**

Constraints:

Different information systems are available in different organizations and although initiatives are made to share information through the IASC and NGO `disaster `management Group the majority of data collected is for individual organisation and INGO project purposes and more coordination on sharing information amongst the stakeholders in the country needs to take place. While the DisInventar web based data system could be the answer to the collection and access to historical and contemporary disaster information, the NDMO lacks the human and information technology capacities to meet the requirements to put the system into place to allow for a comprehensive national monitoring and dissemination of hazard and vulnerability information data base. Furthermore cooperation should be fostered between WREA and NDMO as well as among other line ministries concerned to ensure all relevant disaster data is recorded on DisInventar.

**The Way Forward**

Provision of resources to the NDMO to fund personnel and information technology dedicated resources to the DisInventar database would assist the Lao government in its DRR/DRM efforts. Liaison between WREA & NDMO and other line ministries relating to availability and subsequent input of historical and contemporary disaster related data provides a planning tool that is imperative to the enabling of all government departments planning and budgetary purposes. Furthermore, while this information collection and management tool is a government owned initiative, a coordination mechanism for data sharing can be useful way for word so that respective data sources can be organized and capitalized to their maximum potential.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

\* No: Early warnings acted on effectively

\* Yes: Local level preparedness

\* No: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

### **Description:**

The principal agency for generating and disseminating early warning information to the NDMO and to other pertinent departments is the Department of Meteorology and Hydrology (DMH), a department within the Water Resources & Environment Agency (WREA). The DMH provides flood forecasting along the Mekong mainstream and main tributaries during the monsoon season from June to October each year and DMH provides daily weather information through mass media television and radio.

The NDMO is responsible for further dissemination of information to DM committees at local levels (PDMCs and DDMC), usually undertaken via fax and telephone, in order to take appropriate contingency action, further disseminating early warnings to VDPU's and all communities at risk. The early warning information consists of weather forecast (rainfalls, storms, typhoons) and information on water levels along the main river and tributaries. Information is also available at their website <http://dmhlao.etlao.com>

Funded by the Global Facility for Disaster Risk Reduction (GFDRR), the World Bank and ADPC provide technical assistance for a ground breaking initiative in "The Global Facility for Disaster Risk Reduction Operationalizing Strategic Plan for Disaster Management and Institutional strengthening on Disaster Management in Lao PDR Project" which aims to to strengthen the capacity of the Department of Meteorology & Hydrology (DMH) on EWS, which will include the framework for an operational EWS, EW model, EWS communication guidelines and standard operating procedures amongst DMH, NDMO, PDMC DDMC and VDPU. This project was committed to in 2009 although has only just now (2011) commenced. Through project cooperation between NDMO and INGO partners over the reporting period, Community Based DRR/DRM projects have also developed community based EWS such as radio stations, setting up river monitoring equipment (flood marks) and assignment of monitoring and reporting responsibilities amongst the local populations. In addition, village disaster risk maps are produced (See FRC GIS capacity and new ADPC/NDMO/UNDP Hazard mapping) and held at VDPUs. The disaster risk maps contains information on disaster prone areas within the village, evacuation routes, etc. Although monitoring equipment had been provided in several villages as a result of past projects, the maintenance of the equipment requires dedicated resources, therefore in some villages monitoring equipments are not functional and the VDPUs depends on their traditional/local knowledge for generating early warning information to the local population.

In 2009 UNDP/NDMO/MHD undertook the National Adaptation Programme Of Action To Climate Change (NAPA) project with plans to establish an early warning system for priority flood prone areas in Laos aiming to also improve and expand meteorology, hydrological networks and weather monitoring systems. The project implements in 4 provinces- Luang Namtha, Khammoune, Savannkhet and Attapeu. Once successfully implemented in the four provinces it is the intention to undertake the same project nation wide which would greatly assist the resource issues faced by communities undertaking DRR initiatives, although monitoring and evaluation, high costs associated with the maintenance of equipment, and lack of human resources and high costs associated with system maintenance are seen also as a constraint to the nation wide implementation of the NAPA early warning system.

### **Context & Constraints:**

Constraints;

Dissemination of early warning system is big challenge for the Disaster Management Authorities in LAO-PDR, due to poor ICT / transportation infrastructure, sporadic settlement of populations inaccessible and rugged terrain. Due to the frequent occurrence of flood, DMH has placed more emphasis on flood warning when compared to other disaster risks in the country.

## The Way Forward

Adequate funding to ensure the NDMO/MHD implementation of NAPA throughout the country and ongoing maintenance and monitoring. The WB/ADB initiative to enhance the MHD EWS capacity once implemented will be a major enhancement on the current ad hoc systems in place and has the potential to increase early response and in turn enhanced DRR in the country for the entire population.

The GFDRR project, once implemented by WB and ADPC will serve to assist the DRR at every level in Laos and should solve current issues experienced with EWS nation wide.

## Priority 2: Core indicator 4

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

### Level of Progress achieved:

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### Does your country participate in regional or sub-regional DRR programmes or projects?

Yes

### Means of Verification:

- \* No: Programmes and projects addressing trans-boundary issues
- \* No: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

### Description:

LAO-PDR is member of ASEAN and has also ratified the ASEAN Agreement on Disaster Management and Emergency Response. Under the agreement all ASEAN countries have agreed to cooperate in developing and implementing measures to reduce disaster losses including identification of disaster risk, development of monitoring assessment and early warning systems, standby arrangements for disaster relief and emergency response, exchange of information and technology and the provision of mutual assistance. According to the agreement, each member country will take appropriate measures to identify disaster risks in its respective territories, among others and ensure that its National Focal Point, at agreed regular intervals, communicates information to the ASEAN Coordinating centre for Humanitarian Assistance on Disaster Management, (AHA Centre). The AHA centre receives and consolidates data on recommendations of risk as analysed by a member nations National Focal Points and further disseminates to each ASEAN member country through respective National Focal Points.

NDMO is working in close collaboration with MRC's Flood Management and Mitigation Programme (FMMP) under the MRC Flood Management and Mitigation Strategy, prepared after the 2000 flood in the Lower Mekong basin. The objective of FMMP is to prevent, minimize or mitigate people's suffering and economic losses caused by floods while preserving the environmental benefits of floods and trans boundary flood management is amongst the MRC objectives. See attached report - MRC Strategic direction for integrated flood risk management in the Mekong Delta trans boundary area and MRC Best Practice Guidelines for Flood Risk Assessment- including trans boundary Flood Hazard Mapping 2009

### Context & Constraints:

Constraints:

Although Lao PDR has ratified the ASEAN Agreement on Disaster Management and Emergency Response, there are many foreseeable challenges with implementation, particularly resources both human and financial and capability remains the constraints

The Way Forward:

Adequate resources need to be dedicated to ensure both the ASEAN Agreement on Disaster Management and Emergency Response and the MRC's Flood Management and Mitigation Programme receive the information and analysis required from Laos to ensure this regional initiative is a collection of comprehensive data from all member nations

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## Lebanon (in English)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

#### Level of Progress achieved:

2 - Some progress, but without systematic policy and/ or institutional commitment

#### Is there a national multi-hazard risk assessment available to inform planning and development decisions?

No

#### Means of Verification:

- \* No: Multi-hazard risk assessment
- \* in process % of schools and hospitals assessed
- \* in process schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

#### Description:

The hazard data for Lebanon currently exists, and the risk data is in the process of being compiled. In addition, Lebanon is currently in the process of establishing a National Risk Assessment Profile. This process will begin in April 2011 with the initial establishment of an e-library, DesInventar, Multi Hazard Maps, and a general assessment of critical infrastructure.

In addition, gender disaggregated vulnerability and capacity assessments are in the process of being compiled.

#### Context & Constraints:

The National Risk Assessment Profile is currently in its initial phases and requires the effort and collaboration of different stakeholders in order to be completed.

### Priority 2: Core indicator 2

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Are disaster losses systematically reported, monitored and analysed?**

No

**Means of Verification:**

\* No: Disaster loss database

\* No: Reports generated and used in planning

**Description:**

There are currently some systems in place for key hazards, including earthquakes and weather changes. However there are no systems in place for vulnerabilities.

An international mechanism to evaluate forest fire risks is currently in place .

In addition, a disaster loss database is in the process of being aggregated and compiled.

**Context & Constraints:**

Recommendations include:

- Setting up individual databases for each hazard
- Establishing a website on hazards that is readily accessible to the public
- Designating an authority on this matter
- Allocating specific funds for hazards and risks

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

1 - Minor progress with few signs of forward action in plans or policy

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

No

**Means of Verification:**

\* Yes: Early warnings acted on effectively

\* Yes: Local level preparedness

\* Yes: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

**Description:**

There is a systematic effort to identify and evaluate risks, and to develop early warning systems. Early warning systems currently exist for severe weather warnings. However, the work is still in progress for building the capacity of the early warning systems to detect unusual hazards. There are several research

institutes that currently provide the service of identifying early warnings for hazardous meteorological, hydrological, and geological events.

**Context & Constraints:**

It is challenging to create a system that effectively alerts the larger population of impending disasters. In addition, the current budget for early warning systems is insufficient. There is also a complete absence of early warning systems for some categories of hazards, and there is an evident lack of human capital dedicated to this measure.

Recommendations include:

- Allocating a special budget for early warning systems
- Developing specialized and trained human capital
- Publishing obtained information in order to make it more accessible to a wider audience
- Coordinating between early warning system messages and media outlets, in order to rapidly spread a message to the wider public

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

**Description:**

Due to the similarity in the types of hazards each country is subjected to, Lebanon has signed several regional and sub regional agreements with neighboring nation.

In addition, Lebanon possesses the oldest observatory in the Levant region.

**Context & Constraints:**

Lebanon currently lacks an all encompassing database on hazards.

Recommendations include:

- Updating the early warning systems and databases for every hazard
- Actively and effectively participating in regional and sub regional projects regarding Disaster Risk Reduction

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**Malaysia** (in English)

## **Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### **Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

-- Nothing reported within this timeframe. --

### **Means of Verification:**

\* Yes: Multi-hazard risk assessment

\* 0 % of schools and hospitals assessed

\* 0 schools not safe from disasters (specify absolute number)

\* No: Gender disaggregated vulnerability and capacity assessments

\* No: Agreed national standards for multi hazard risk assessments

### **Description:**

A number of programmes have been carried out to assess and mitigate risks of different disasters. The Road Platform Rise Up Study by the Public Works Department identifies and delineates hazard and risk maps for flood prone areas at network and project levels; whilst the Climate Change Risk and Impacts Studies by the Malaysian Meteorological Department and Drainage and Irrigation Department will provide insight on the level of exposure to hydro-meteorological hazards. Through the National Slope Master Plan Study, the Public Works Department establishes an inventory of susceptible areas and different types of landslides hazards and risks. Its Guidelines for Slopes has been widely used by government agencies and the private sector to minimise risks in slope failure disasters. The risk assessment of earthquake and tsunami on Malaysia had been completed and regularly updated to provide input to the response plan. Localised modelling, downscaled from global climate models, has been carried out by the National Hydraulic Research Institute Malaysia and Malaysian Meteorological Department to project future climate conditions. Results of the modelling provided inputs for assessing potential implications to several key resource and economic sectors in the country. The Drainage and Irrigation Department conducted the National Coastal Vulnerability Index Study in 2007 to assess vulnerability of coastal areas to sea level rise. There are also a number of R&D initiatives on risks assessment funded by the Science Fund managed by the Ministry of Science, Technology and Innovation covering issues on flood, landslides and earthquakes. The Department of Town and Country Planning has developed several planning tools that aim to reduce risks of different disasters. These tools include the Land Use Planning Appraisal for Risk (LUPAr) Programme, Highland Planning Guideline and the concept of Environmentally Sensitive Areas for the preparation of national physical, state structure and local plans.

### **Context & Constraints:**

The risk assessment needs to be carried out at local level and more specific locations. Such efforts will require more effective dissemination of existing information and resources as well development of different tools in support of such assessments. In particular, it is crucial to take into consideration different, and possibly conflicting, priorities and needs of various stakeholders in a balanced manner under the current

situation of limited resources.

During the Tenth Malaysia Plan (2011-2015), the Government will review the value at risk for communities to develop a clear understanding of the cost-benefit trade-offs involved in averting or reducing the impact of such climate-related hazards. Measures to be undertaken include development of a robust risk framework to assess and quantify the climate risk faced by the economy and prioritise measures to address those risks; implementation of policy decision frameworks to ensure that future infrastructure investments are climate resilient; and enhancement of capacity in the field of climate prediction and modelling to develop stronger Malaysia-specific and sector-specific knowledge.

## **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### **Are disaster losses systematically reported, monitored and analysed?**

-- Nothing reported within this timeframe. --

### **Means of Verification:**

\* No: Disaster loss database

\* No: Reports generated and used in planning

### **Description:**

There are several monitoring systems in place for specific hazard. Through the National Slope Master Plan, the Public Works Department established systems for monitoring landslides risks and hazards information. The Malaysian Meteorological Department is continuously monitoring seismic waves, sea level changes and severe weather events as well as haze and drought situation in the country. Atmospheric models have been applied for Quantitative Precipitation Forecasting to enhance reliability and accuracy of forecast, and run in three river basins of Peninsular Malaysia (Pahang, Kelantan & Johor River basin) to provide real-time flood warning and emergency responses in a convenient lead time.

### **Context & Constraints:**

There is a need to have more monitoring networks for seismic, sea level, weather observations as well as more efficient dissemination networks and good cooperation from the mass media. The dissemination of information in a timely manner is crucial to ensure that vulnerable communities and responders are promptly informed to enable them to take necessary actions.

## **Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

### **Level of Progress achieved:**

5 - Comprehensive achievement with sustained commitment and capacities at all levels

### **Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

**Description:**

Flood forecasting and early warning system are put in place to disseminate early warning to the public. It is an integrated system that comprises hundreds of rainfall and water level stations, manual sticks gauges, boards and sirens installed at strategic locations all over the country. The conventional weather radar system is also being upgraded to Doppler weather radars in Sarawak.

Further to the tsunami incident in 2004, a National Tsunami Early Warning System has been developed by the Malaysian Meteorological Department to provide early warning on tsunami threat that may affect the country. With this system, the government is able to forewarn the public of the possible occurrence of tsunami over the Indian Ocean, South China Sea or the Pacific Ocean.

Early warnings are disseminated through sirens, short messaging system (SMS), telephone, telefax, webpage, mass media broadcasting system and public announcements. The ICT is also utilised to promote awareness and disseminate early warnings to the public via a Fixed-Line Disaster Alert System (FLAS). A separate system known as the Government Integrated Radio Network (GIRN) provides radio communication between responders during emergency or disaster. Disaster reporting is now more efficient with the centralised Malaysia Emergency Response System (MERS) emergency hotline. To fully capitalise the potential of mass media as an effective platform to disaster preparedness among the public, the Ministry of Information, Communication and Culture has established a Disaster Unit in the Department of Broadcasting Malaysia.

**Context & Constraints:**

Improvement in accuracy of prediction is necessary before any early warning is announced. Dissemination approaches for such early warning require testing to ensure effectiveness and efficiency is actual situation. In longer term, the National Slope Master Plan will be expanded to provide early warning system in landslide prone areas.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

**Description:**

Malaysia involves with international and regional platforms organised by different agencies as well as, through the National Security Council, works closely with international organisations.

Malaysia signed the ASEAN Agreement on Disaster Management and Emergency Response (AADMER) that entered into force in 2009. The agreement is a further testament of ASEAN’s commitment to systematically address and develop formal legal and logistical arrangements to respond to disasters in the region.

The country organised the Third Asian Ministerial Conference on Disaster Risk Reduction in Kuala Lumpur in 2008, which was attended by Ministers and government officials from 43 countries as well as representatives from relevant international and regional organisations. Malaysia has been participating in all previous AMCDRR as well as its Global Platforms in Geneva and supports various programmes and campaigns organised by ISDR.

Earlier in 2009, Malaysia was chosen to chair the UNESCAP Subsidiary Committee on Disaster Risk Reduction. The committee will complement other agencies including the ISDR regional office and regional organisations in the implementation of disaster risk reduction plans and programmes.

Malaysia is also member of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS), a primary subsidiary body of the UNESCO Intergovernmental Oceanographic Commission to coordinate the effort to develop an integrated and cohesive warning and mitigation system in the Indian Ocean.

Malaysia collaborates with neighbouring countries in minimising risks and impacts of haze due to trans-boundary transfer under the framework of the ASEAN Agreement on Trans-boundary Haze Pollution 2002. Such collaboration includes assistance for carrying out cloud seeding operation in areas with forest fire during the dry periods.

Bilateral cooperation in disaster management is also established with Thailand under the Disaster Management Working Group of the General Border Committee (GBC).

**Context & Constraints:**

Malaysia will continue active participation in regional collaboration.

**Maldives** (in English)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

### **Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

#### **Means of Verification:**

\* Yes: Multi-hazard risk assessment

> Cost-Benefit Study of Risk Mitigation Measures in 3 Islands in the Maldives (2009)

[http://www.preventionweb.net/files/15495\\_cbalayoutweb.pdf](http://www.preventionweb.net/files/15495_cbalayoutweb.pdf) [PDF ]

> Developing a Disaster Risk Profile for Maldives (2006)

[http://www.preventionweb.net/files/15495\\_developingadisasterriskprofileforma.pdf](http://www.preventionweb.net/files/15495_developingadisasterriskprofileforma.pdf) [PDF ]

\* 0 % of schools and hospitals assessed

\* 0 schools not safe from disasters (specify absolute number)

\* No: Gender disaggregated vulnerability and capacity assessments

\* No: Agreed national standards for multi hazard risk assessments

#### **Description:**

Disaster Risk Profile of Maldives has been published in 2006 which includes a detailed study and hazard mapping. Detailed Island Risk Assessment of ten islands and Cost Benefit Analysis of three islands have been completed with their respective reports published. CBDM plans have been prepared for thirty seven islands which involved preparation of hazard maps and risk analysis. Among the 37 islands, the required Simulation exercises based on the CBDM plan was conducted in only Vaavu Felidhu and Meemu Muli.

#### **Context & Constraints:**

1st Nationwide Disaster Risk Assessment was presented by "Developing a Disaster Risk Profile for the Maldives" in 2006. "Detailed Island Risk Assessment of the Maldives (DIRAM)" is being finalised to provide detailed disaster risk analysis (physical and socio-economic) of the most vulnerable 10 islands identified in "Developing a Disaster Risk Profile for the Maldives". Furthermore, "Cost Benefit Study of Disaster Risk Mitigation Measures in Three Islands in the Maldives" was prepared in 2009 to provide policy makers with cost-effectiveness of 3 mitigation measures (Safe Island Protection, Selected Safe Island Protection, Limited Protection).

From the viewpoint of climate change adaptation, National Adaptation Plan of Action was developed in 2006 based on 1st national communication to UNFCCC, describing impacts of climate change including extreme events on key economic sectors including fishery, tourism and agriculture.

Challenges lie on institutionalizing risk information into planning and decision-making processes of the ministries. "Project on Integration of Climate Change Risks into Resilient Island Planning in Maldives" and "Climate Risk Management Technical Assistance Support Project" initiated in 2009 and 2010 respectively to address this point. The key outputs of these project will be development of land-use planning guideline to incorporate climate risk and provision of updated risk information for the next Tourism Master Plan and Agriculture and Fishery Master Plan.

#### **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

**Description:**

MMS monitors the weather patterns of Maldives and an SOP has been formulated, which specifies the procedures to follow and how to disseminate early warning during hazards and disaster events. DNP is working on the establishment of a GIS system in Maldives, and the progress has to be found out. MMS has two main networks to monitor Meteorological and Seismic hazards. Meteorological network is equipped with 5 synoptic stations, 3 tide gauge stations and 20 automatic weather stations. Seismic network is linked with global seismic network to monitor earthquakes across the region. It has two broadband seismometers, one in the north and one in the south. One short period seismometer is installed in the central. MMS continuously monitors sea level data from local and regional tide gauges as well as DART buoys deployed in the region.

**Context & Constraints:**

Two employees from MMS gained some training about GIS with a trail period working system. The system needs to be upgraded with adequate training.

Statistical downscaling of Climate Modeling is to be carried out by MHE with support from RIMES.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

\* No: Early warnings acted on effectively

\* Yes: Local level preparedness

\* No: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

**Description:**

An Early Warning System has been established in MMS and the National Early Warning System Code is also developed. In addition to the airports nine automatic weather stations has been installed by MMS along with a Doppler Weather Radar. MMS early warning system has been strengthened with sophisticated equipments such as high resolution satellite image receiving station, Doppler weather radar. MMS use software called Seiscomp3 which has the capacity to locate and calculate the epicenter, magnitude and other parameters automatically. It has many advanced options to analyze the waves locally and calculate the accurate magnitude. Based on collected seismic information, MMS can calculate the distance and expected tsunami arrival time to Maldives. MMS has established redundant links for communicating with local, regional and international centers by using 256 kbps VSAT, 10 mbps internet connection and satellite phone.

A procedural guidance and action steps are developed. It is incorporated with the National Disaster Management Plan in accordance with the policies of the government. Hotlines are being established with main stakeholders. Through local radio and TV stations, warning messages can be reached to island communities. An LCD display wall of 12x7 feet has been set and made fully function at the Early Warning Center to give live briefings and warnings to public through radio / TV stations on events of natural disasters.

#### **Context & Constraints:**

However communication and message dissemination is ineffective and outreach to wider communities has not been established, as there is no localized early warning system in the communities.

Prioritization of Disaster Preparedness in the communities is found to be very low (while local level preparedness activities are being carried out), as communities do not actively prepare themselves for hazard warnings and recurrent natural hazards.

#### **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

#### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

#### **Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

#### **Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

#### **Description:**

National Tsunami Warning System takes into account trans-boundary hazards such as communicable diseases from other countries and ships that travel with hazardous materials. MMS has a capacity of High resolution satellite image receiving system, 20 automatic weather stations, 5 synoptic stations, Doppler Weather Radar, Marine Weather Radar, Global telecommunication System, Seismic Networking and 3 Tide Gauge System . In addition to this MMS also has close contact with international and regional disaster

warning centers and systems. In events of earthquake and tsunami, MMS receives real-time bulletin from Pacific Tsunami Warning Center (PTWC), Japan Meteorological Agency (JMA) and INCOISE. During weather hazards, regional Tropical Cyclone Warning Centers (New Delhi and La Reunion) issue advisories and warnings. MMS receive all these messages through Global Telecommunication System (a modern message switching system). MMS is a member of SAARC Meteorological Research Center (SMRC) and Regional Integrated Multi-hazard Early Warning System.

**Context & Constraints:**

Lack of trained personnel in the area.

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## Mongolia (in English)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

**Means of Verification:**

\* Yes: Multi-hazard risk assessment

\* 0 % of schools and hospitals assessed

\* 0 schools not safe from disasters (specify absolute number)

\* No: Gender disaggregated vulnerability and capacity assessments

\* No: Agreed national standards for multi hazard risk assessments

**Description:**

The Disaster Research Institute, NEMA has developed some of the assessment tools in multi-hazard situation and the UN country office has also developed some tools under the guidance of UN OCHA.

**Context & Constraints:**

Lack of budget and expertise.

### Priority 2: Core indicator 2

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Are disaster losses systematically reported, monitored and analysed?**

No

**Means of Verification:**

\* No: Disaster loss database

\* Yes: Reports generated and used in planning

**Description:**

Currently Mongolia has no disaster loss database. The disaster related data of Mongolia of the last decade has been analyzed, based on which the possible hazards, accidents, and losses for 2009 have been forecasted. The possible hazards and risks have been evaluated based on these forecasts and recommendations have been issued for their prevention.

Within the framework of the research work to determine the general trend and outlook of the hydro-meteorological hazards, the trend, outlook, and possible effects on the population of the strong windstorm, which is one of the major types of meteorological hazards in Mongolia, have been determined and geographically plotted on a map, based on the analysis and integration of all daily logs of the hazardous phenomena that occurred in Mongolia during the period of 1999-2008. As a result of this research, a scientific article titled "The impact of strong winds and storms on the general population" has been delivered to the public attention.

The researchers of the Disaster Research Institute have published a "Compilation of the Hazardous Events and Accidents that occurred in Mongolia in 2000-2009" to help determine any regularities, order, and trend in the geographic coverage and timing of hazards and disasters to optimize disaster management measures.

The data of the hazards, accidents and disaster that occurred in Mongolia in the past decade have been geographically logged into a map. This research has yielded a report titled "Study on the Impact of Certain Hydro-Meteorological Hazards in Mongolia".

Data on the incidences of contagious human and livestock diseases that occurred during the period of 1999-2008 have been consolidated by provinces, months, and seasons, and mapped geographically yielding useful a database. In addition, the website of the Disaster Research Institute [www.disasterinfo.mn](http://www.disasterinfo.mn) has been created.

**Context & Constraints:**

Lack of financial resources. Firstly, foreign grants could resolve the obstacle. Secondly, the issue should be presented well to the Government for the necessary resources when the situation of the state budget is improved in the near future.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* No: Local level preparedness
- \* No: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

**Description:**

With support from the mass media including the press, radio, television, and cellular telephone operators, we are able to disseminate timely and easy to understand early warning on possible imminent hazards.

**Context & Constraints:**

Lack of financial resources. We are able to disseminate early warning messages from the national agency to the province and soum levels. However, oftentimes early warning messages addressed to the herder households, which reside in remote areas without the coverage of television and radio broadcasts and mobile phone service, fail to reach the audience. With a view to establish a reliable early warning system, we have developed several project proposals titled "Early warning" and "Disaster Information and Communication System" etc and are looking for financial sources. Another problem is the absence of earthquake prevention stations and equipment.

To resolve these issues, we need to provide communication facilities to the soum Governors, establish an early warning system, and look for an investor from among foreign donors to resolve the financial handicaps faced in implementing these measures.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* No: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

**Description:**

In April 2009, NEMA participated in the "International Training and Drill on Urban Search, Rescue, and

Recovery Operations in case of an Earthquake Disaster in the Asia-Pacific Region” organized in Nepal by the International Council for Search and Rescue, UN Office for the Coordination of Humanitarian Affairs.

Official visit to Ministry of Civilian Affairs of China, Beijing, on 20-24 April 2009, with a view to strengthen the cooperation of the two countries in disaster management, and seek China’s support in training NEMA’s staff and renovation of the existing equipment.

Official meeting with the Russian counterparts with a view to endorse a cooperation plan of 2010 among the emergency management units of Hentii, Dornod, and Suhbaatar provinces of Mongolia and the Baikal region of the Russian Federation.

Official meeting in Ulaanbaatar between NEMA and the Alaska National Guard, USA, with a view to instigate cooperation within the framework of the previously co-signed Memorandum of Understanding.

On 16-19 June 2009, representatives of Mongolia headed by Mr. Enkhbold M., Deputy Prime Minister, participated in the 2nd Assembly of the World Disaster Risk Reduction Program and exchanged views on expanding partnership and cooperation for disaster management.

#### **Context & Constraints:**

As a country located in the central part of Asia, in the area of early warning system, Mongolia is not exchanging enough information with and not receiving adequate help and support from the developed countries and those countries that have reached certain success in the field to better evaluate and monitor the regional and worldwide disaster risks. Besides, the country lacks set standards on disaster risks and damages.

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## **Nepal** (in English)

### **Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

#### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

#### **Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

-- Nothing reported within this timeframe. --

#### **Means of Verification:**

- \* Yes: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

Institutional commitment for the hazard assessment and vulnerability assessment is well reflected in the Tenth National Plan (2002-08). The tenth plan has identified the main cause of failure of past attempts, among others, as "...the lack of modern technology that provides pre-information and warning about the possible natural disaster, the lack of topographic survey of possible disaster areas, and the lack of awareness in the management of natural disaster." Therefore, the plan has set one of the targets of disaster risk reduction as hazard map preparation. The plan has envisaged one of the strategies as "the seismological measurement center and the natural disaster management center established in the country will be strengthened." The underachievement of the Tenth plan can be underscored from the fact that little has been done to improve the situation of seismological measurement and natural disaster management center in the plan period.

DHM in coordination with MoHA has prepared Early Warning Strategy and going to be approved by government very soon. There are few successful initiatives carried out by some governmental and non-governmental organizations to set-up early warning system such as community based flood early warning system implemented in some places.

The risk assessment is done by the most of the organization but do not cover multi-hazards. At the same time, sector specific risk assessment and analysis are missing which is critical to develop sector specific plans; climate change, food insecurity etc . Absence of common and standard approach for risk assessment and analysis has been the constraining factor.

Participatory vulnerability risk assessment (PVA) is being carried out by some agencies with involvement of communities at risk. PVA has produced localized hazard map and this information is used for disaster risk reduction action planning.

**Context & Constraints:**

Accumulation of data alone is not enough as it needs to be processed into useful information and also equally important is to disseminate the information to communities at risk so that they can make decision for reducing the underlying risk. Although the national plans have emphasized lack of coordination and focus on emergency response as some of the challenges for effective disaster risk reduction, the implementation programs are unable to overcome the challenges. The risk reduction initiatives envisaged in development plans are seldom realized in the field.

Scaling up the few successful examples and continuation of existing success stories are some of the biggest challenges not only in early warning system but also in overall aspect of disaster risk reduction.

Although community level risk mapping is done with the support of municipalities, the process has to be internalized by VDCS and Municipalities. As this is not happening for many reasons, scaling up and sustainability of such initiatives are major concerns.

**Recommendation**

The government ministries in close cooperation/ collaboration with non-government agencies should initiate a national level risk assessment exercise covering major hazards in the country.

Prepare Risk Sensitive Land Use Map for all 5 regional centers in first phase and for all District Headquarters and municipalities in the next phase.

Conduct studies on indigenous knowledge on hazard assessment and risk mitigation measures, document it and disseminate it to wider audience. Such indigenous knowledge should be protected and institutionalized by mainstreaming it in the formal and informal education.

Strengthen technical capacity of the local authorities to conduct risk assessment and analysis by conducting intensive training in all municipalities.

Establish national Disaster Information Management system database accessible to all stakeholders and to the communities.

## **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### **Are disaster losses systematically reported, monitored and analysed?**

Yes

### **Means of Verification:**

\* Yes: Disaster loss database

\* No: Reports generated and used in planning

### **Description:**

Department of Mines and Geology disseminates information about earthquake to media houses within half an hour of occurrence of earthquake. However, there is no system in place to monitor, archive and disseminate information about other hazards such as landslides and floods. Earthquake risk mitigation project of Government of Nepal carried out detailed earthquake hazard and vulnerability analysis of Kathmandu (2002) and this is the only substantial information on earthquake risk mitigation of Kathmandu valley available so far. Similarly, Department of Water Induced Disaster Prevention (DWIDP) has prepared Water Induced Disasters hazard map of 10 major basins in Nepal.

There are no community level vulnerability assessments carried out for any type of disasters in Nepal. GoN with support from UNDP/ICIMOD conducted Community Risk and Vulnerability Assessment of eight Village Development Committees (VDCs) representing three physiographic regions - the middle mountains, the inner Terai, and the Terai. There are some scanty information on earthquake vulnerability for few cities (Kathmandu, Lalitpur, Ilam) from independent studies. However, for other disasters, there is neither comprehensive information about level of hazard nor about the vulnerability.

### **Context & Constraints:**

Nepal lacks systematic and scientific database system about hazards, vulnerabilities and risk at macro and micro level. Few agencies at the central and district levels regularly publish and disseminate disaster related information. However, transparent and effective systems to monitor and archive of disaster related data are still to be put in place. Similarly, as of now the focus to collect information at any level is only limited to any disaster occurrence or post disaster situation.

Nepal has substantive number of community and local radio stations and print media. Nepal has established mobile phone network all over the country. Effective media management will be an effective tool for collecting hazard and vulnerability information and disseminating relevant information to the communities at risk. However, media involvement is so far limited to disseminating information of the event.

Recommendations

It is important to develop a policy in collaboration with Telecommunication, Media and Journalists for effectively using the reach of media and telecommunication network for information collection, sharing and dissemination for the communities at risk. Involvement of the communities for collection, compilation, processing and disseminating information not only ensures usefulness of the information but also contribute towards sustainability of the approach.

The effort is required to enhance capacity of media persons to report disaster issues effectively by providing orientation, awareness and capacity building training at least once each year in each of the five regional centers. Awareness creating, sensitizing and capacity building of media in disaster risk reduction is necessary for effective use of the reach of media to the society.

It is equally important to develop standard data collection process and ensure collection of timely and reliable data has to be through an institutional basis. Local authorities, school teachers and media persons will be effective medium of collection and dissemination of disaster information.

### **Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

#### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

#### **Do risk prone communities receive timely and understandable warnings of impending hazard events?**

No

#### **Means of Verification:**

- \* No: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* No: Communication systems and protocols
- \* No: Active involvement of media in early warning dissemination

#### **Description:**

The Government of Nepal has developed Early Warning Strategy for Nepal and it is likely to be approved. The strategy, along with NSDRM, will be effective guiding documents for development and sustainability of effective early warning system in Nepal.

Nepal Red Cross Society carries out community based disaster risk reduction measures such as establishment of basic Early Warning System (EWS) at communities along with construction and maintenance of shelters and drinking water system; capacity building measures such as trained manpower for rescue and relief; and Hazard, vulnerability and capacity assessment and mapping at communities.

DHM has developed community based flood early warning system in Rapti, Narayani, Baulaha Khola, West Rapti in Chitwan, Nawalparasi, Banke and Bardia districts.

#### **Context & Constraints:**

Early warning system doesn't function well unless they are institutionalized at community level. In order to increase their effectiveness the EWS has to be integrated with social system of the communities such as

involvement of school and school teachers in spreading the message.

There are few successfully working EWS. However, extending the current EWS to capture multi-hazard risk and scaling up the pilot projects at country level are two of the major challenges.

Absence of national level mechanism to monitor hazard and risk, forecast warning messages, disseminate it to the communities at risk is another challenge for DRR. The media is less aware and less involved in EWS and their involvement can be substantially improved through awareness creating and capacity building.

One of the challenges for early warning system is establishing communication protocol between technical authorities (like Department of Hydrology and Meteorology) and communities.

#### Recommendations

Multi-Hazard map for all areas of the country should be prepared and existing maps and information should be made user-friendly to the communities.

It is important to prepare high-risk areas for water induced disasters and develop rainfall threshold map for floods and landslides.

It is necessary to install EWS in all major river basins, GLOF and landslide prone areas throughout the country.

Preparation of Risk sensitive land-use planning for five regional centers in the first stage and municipalities in the next state should be prioritized.

Identification of major hazards and institution to deal with such hazard and people centered EWS.

Indigenous knowledge has been proved effective in mitigating disaster risk. Therefore, documenting such practices, disseminating it to wider audiences and institutionalization of the knowledge in formal and informal education system should be prioritized.

### **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

#### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

#### **Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

#### **Means of Verification:**

\* Yes: Programmes and projects addressing trans-boundary issues

\* Yes: Regional and sub-regional strategies and frameworks

\* No: Regional or sub-regional monitoring and reporting mechanisms

\* No: Action plans addressing trans-boundary issues

#### **Description:**

The 1934 Bihar-Nepal Earthquake and 2008 Koshi flood are two vivid examples of trans-boundary

disasters affecting Nepal and India simultaneously. Although both countries faced different levels of damages, there were serious gaps in relief and rescue and responding to the immediate and long-term needs of the affected communities in both the countries. In 2008 Koshi flood, it was observed that many affected people crossed the border to take refuge in the shelters available in Nepal side. Because of lack of trans-boundary operation and cooperation framework in case of disasters, the response to these disasters couldn't be coordinated in a better way.

Not only for disasters affecting countries on either side of the border, cooperation framework at regional and bi-lateral level is an urgent requirement. This will not only facilitate efficient and effective planning of resources for immediate response to disasters, but also will lead to exchange information and experience in disaster preparedness.

In this context, establishment of SAARC Disaster Management Center in 2007 is a positive step. Development of South Asia Disaster Knowledge Network (SADKN) by SDMC is another important work in the field of disseminating disasters information in the region.

### **Context & Constraints:**

The difference in economic development along with investment in infrastructure and advancement in technology among the SAARC countries is manifested also in the different level of response capacities in South Asia. However, with respect to the nature of hazards the countries face and in terms of their level of disaster preparedness, all of the countries are almost at equal footing. The earthquakes that occurred in Gujarat in 2001, in Pakistan in 2005 and in China in 2008 is a reflection of how the countries face similar level of risk to natural disasters.

As the region shares same ecological, geological and river system, regional cooperation mechanism can be instrumental in realizing better disaster risk reduction. The need for regional cooperation, which extends from real time data sharing to immediate response in case of a big disaster, has been recognized and underscored at regional forums. Some initiatives have been taken place such as the issue of river training to reduce flood inundation in Nepal-India boundary, initiative for regional flood information system and humanitarian action in the aftermath of a disaster.

Another area where immediate cooperation is required is the Pandemic. This is of added importance to Nepal and India, as they share large (about 1600 Km) land boundary connecting peoples in the two sides.

### **Recommendations**

Strengthen SAARC Disaster Management Centre (SDMC) to play central role in DRR and Emergency Response at regional level which will ultimately lead to effective use of SAARC DM center and metrology center for early warning, risk mitigation and emergency response

Development of procedure and standards for Rapid Damage and Need Assessment survey by SDM center and use of that information to mobilize resources and response at regional level

Strengthen inter-governmental cooperation for common trans-boundary issues and mobility of people during disasters

Establish hotline contact with authorities at all levels (National, Regional and District level) for immediate communication in case of major natural disasters requiring attention of the other side.

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## **Pakistan** (in English)

### **Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

-- Nothing reported within this timeframe. --

**Means of Verification:**

- \* No: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

Institutional commitment has been attained through identification of National Hazard and Vulnerability Assessment as one of the priority areas in the National Disaster Risk Management Framework (NDRMF). Accordingly, the NDMA has launched the National Composite Risk Assessment and Emergency Response System Project. The major part of the initiative is aimed at carrying out multi-hazard risk assessment and hazard mapping of Pakistan. The National Hazard Map so developed will be integrated with the GIS system for accurate and timely decision making in the field of disaster management. Financial resources to the tune of USD 4 million have already been made available by the World Bank for the Project. A French firm BRGM has been selected to implement the project in collaboration with local partners. The Project has been delayed due to some unavoidable reasons and now expected to be completed by the end 2011.

Apart from the above major initiative taken by the NDMA, local level risk assessment exercises have been done by a number of stakeholders in small cities and districts; e.g. Earthquake Reconstruction and Rehabilitation Authority (ERRA), UNDP, FAO, Pakistan Space and Upper Atmosphere Research Commission (SUPARCO), FOCUS, OXFAM Novib and GTZ.

**Context & Constraints:**

The foremost challenge is the non availability of local expertise and professionals in the field of risk assessment which is further exacerbated by technological gap. In the given scenario, scarce resources are consumed in procurement of professional services from international market which adversely impacts the implementation of risk assessment initiative.

Availability of reliable data is another challenge in carrying out accurate assessment of hazard risks. The available data is scattered, most oftenly inaccessible and sometimes suffers from lack of reliability. In such a situation, collection of data and subsequent hazard risk analysis becomes a very intriguing job for the project implementers. Another challenge is consolidation and integration of risk assessment efforts being undertaken by different stakeholders in different areas. The lack of coordination and sharing of information between the stakeholders often leads to duplication of efforts and wastage of resources.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Are disaster losses systematically reported, monitored and analysed?**

-- Nothing reported within this timeframe. --

**Means of Verification:**

\* No: Disaster loss database

\* No: Reports generated and used in planning

**Description:**

With regard to the systems of monitoring of hazards and archiving and dissemination of data on hazards and vulnerabilities, Pakistan can be ranked at level two. Although, Pakistan has a fairly reasonable system of collecting, archiving and disseminate data on hydro-meteorological hazards through the Pakistan Meteorological Department, WAPDA and Federal Flood Commission but the same needs to be streamlined to ensure timely dissemination of data/information to the communities. However, a national comprehensive system needs to be put in place to monitor, archive and disseminate data encompassing all hazards and supported by a comprehensive compatible IT infrastructure. The completion of the National Composite Risk Assessment Exercise alongwith development of compatible IT infrastructure, would allow Pakistan to develop a system for monitoring of hazards and efficient dissemination of data for effective disaster management.

**Context & Constraints:**

The major challenge being the lack of local capacities on account of expert human resources and application of modern technology to develop a comprehensive system for monitoring, archiving data and disseminating information down to the community level. Substantial investment on account of time and resources is required to develop sytemic mechanisms supported by compatible IT infrastructures and trained human resources. However, the resource scarcity being faced by the Government is a major stumbling block in implementing the national policies and strategies on this account.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

-- Nothing reported within this timeframe. --

**Means of Verification:**

\* No: Early warnings acted on effectively

\* No: Local level preparedness

\* No: Communication systems and protocols

\* No: Active involvement of media in early warning dissemination

### **Description:**

Pakistan has good institutional capacities for monitoring and warning of flood hazards. Following floods of 1992, a comprehensive Indus Forecasting Flood Forecasting Division (FFD), Lahore which is part of Pakistan Meteorological Department (PMD), undertakes dissemination of flood early warning to national stakeholders through an institutionalized process that connects inputs down to vulnerable communities using multiple channels.

Flood forecasting occurs through a four fold input system which includes:-

- -Network of weather radars
- Telemetric system which sends real time inputs on water flows
- Satellite coverage includes both indigenous capacity and through WMO network
- Ground observation through PMD ground station deployed across the country.

Among weather radars deployed across the country more significant are the Doppler radars that furnish quantified inputs and are deployed in Lahore, Sialkot and Mangla to cover the catchments region.

Water and Power Development Authority (WAPDA) has installed telemetry gauges along the rim of rivers in the catchments region and along some major rivers and it monitors water flows in these channels and provides real time information to FFD.

•Provincial Irrigation Departments also monitor river flows in respective provinces and they also communicate inputs to FFD.

Indus Water Commission (IWC) receives flood information from India and its inputs also end up with FFD. FFD (PMD) in Lahore constitutes the nerve centre for flood early warning.

A comprehensive Disease Early Warning System (DEWS) is in place under the auspices of Ministry of Health in collaboration with WHO.

The NDMA with the technical and financial support of UNESCO-IOC has initiated the project "Strengthening Tsunami Early Warning System in Pakistan" under the One UN Joint DRM Programme. Under the programme the capacities of National Tsunami Warning Centers of Karachi and Islamabad for technical analysis and assessment for tsunami were strengthened by providing required equipments, and analysis softwares and technical trainings.

### **Context & Constraints:**

Although institutional capacities have been developed over the years to disseminate early warnings on account of hydro- meteorological hazards and epidemics, yet the Country still lacks an integrated multihazard early warning system. The current early warning capacities encompass only a few hazard risks while institutional capacities need to be developed to cover other major risks such as landsliding, drought, forest fires etc. Besides in the absence of an integrated multihazard early warning system, institutional preparedness to make an integrated and multihazard response remains far from the desirable levels.

Lack of resources, both financial and human, to develop and update early warning systems with meaningful coverage of all hazard prone areas and communities, remains the foremost challenge.

### **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### **Does your country participate in regional or sub-regional DRR programmes or projects?**

-- Nothing reported within this timeframe. --

**Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues
- \* No: Regional and sub-regional strategies and frameworks
- \* No: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

**Description:**

Institutional commitment has been attained as Pakistan has already entered into regional partnerships in the field of disaster risk reduction. It is one of the 27 member states of Asian Disaster Reduction Centre (ADRC). The Center works to build disaster resilient communities and to establish networks among countries through many programs, including personnel exchanges in this field. Through the ADRC forum, Pakistan is committed to share information and knowledge about disasters with the member states. It also contributes in Research at the ADRC through nomination of research scholars.

Pakistan is also one of the 8 member states of SAARC Disaster Management Center (SDMC) which serves as the regional forum for the member countries for providing policy advice and facilitating capacity building services, including strategic learning, research, training, system development, expertise promotion and exchange of information for effective disaster risk reduction and management. Being one of the member states, Pakistan is committed to the charter of the SDMC which calls for sharing of best practices and lessons learnt from disaster risk reduction efforts at national levels, developing and implementing regional programmes and projects for early warning, establishing regional system of exchange information on prevention, preparedness and management of natural disasters and a regional response mechanism dedicated to disaster preparedness, emergency relief and rehabilitation to ensure immediate response to any regional disaster risk.

**Context & Constraints:**

The regional geopolitical situation does not allow free flow of information and sharing of data between countries in South Asia. Besides, South Asia being one of the less developed regions on account of technology and communication infrastructure, the arrangements for flow of information and early warnings are not at the desirable levels. Therefore, governments of the Region ought to take practical steps to ensure free flow of information and exchange of experiences on disaster management through mutually agreed mechanisms on disaster management. The member states of ADRC and SDMC are also required to take meaningful steps to implement regional strategies and policies as envisaged under the charters of the respective forums.

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**Sri Lanka** (in English)**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

No

**Means of Verification:**

\* Yes: Multi-hazard risk assessment

> Framework for a Methodology to Integrate Vulnerability to Develop Natural Hazard Risk Profiles for Sri Lanka (2009) [http://www.preventionweb.net/files/15417\\_frameworkfordevelopmentofriskprofile.doc](http://www.preventionweb.net/files/15417_frameworkfordevelopmentofriskprofile.doc) [DOC ]

\* 15 % of schools and hospitals assessed

\* 0 schools not safe from disasters (specify absolute number)

\* No: Gender disaggregated vulnerability and capacity assessments

\* Yes: Agreed national standards for multi hazard risk assessments

**Description:**

Hazard Maps at 1:10,000 and 1:50,000 scales for landslides were completed for nine vulnerable districts out of ten. Awareness programmes are being conducted for development agencies and Local Authorities in vulnerable districts.

Development of Hazard Maps for cyclone, coastal hazard, and drought is in progress and is scheduled to be completed in March, 2011. The Hazard Maps for floods will be completed in December, 2011.

The DMC has acted towards developing multi-hazard vulnerability and risk maps based on agreed methodologies for the development of Risk Profiles.

Guidelines were developed for the preparation of Hazard Maps at the village level and were made available to village level Disaster Management Committee members.

Community level hazard maps (mostly with identified evacuation routes) have been developed for approximately 100 communities; development of the same is in the progress for other villages.

A total of 40 schools and 10 hospitals in the Eastern Province were assessed for structural safety.

Databases of historical information on climate and oceanographic parameters are available.

A 'Database on Disasters since 1974' is available at [www.desinventar.lk](http://www.desinventar.lk).

National Pandemic/Epidemic Preparedness Plan and the Health Disaster Management Plan are available for health hazards.

**Context & Constraints:**

Non-availability of topographic maps of 1:10000 scale and high resolution Digital Elevation Maps for river basins is affecting the flood modelling to develop inundation areas. Therefore, the Hazard Map for flood is being developed based on experience of past floods.

Non-availability of high resolution digital elevation data of areas downstream of major reservoirs and for the conflict affected coastal belt affects the development of Risk Profiles.

Non-availability of evacuation guidelines for some hazards

Coordination with the non-health sectors for synergistic action  
Social mobilisation issues

Access to data from other sectors' fragmented action

Expanded use of information technologies for forecasting/predicting and early response

## **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### **Are disaster losses systematically reported, monitored and analysed?**

Yes

### **Means of Verification:**

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

### **Description:**

The DMC has developed a web based data portal on disasters from 1974.

Data on disasters collected from newspapers are revalidated with actual records from districts before publishing on the website. A mechanism is available to update data with the assistance of divisional offices. The EOC of the DMC collects data, which is entered into the database on a daily basis. Information on relief and reconstruction assistance is also available.

A similar system is available for event based and routine surveillance of communicable diseases.

A study on damage and loss assistance was initiated after severe floods in Western and Southern Province in 2010. A training module is being developed to improve the capacity of officials from respective sectors to undertake the assessment after future disaster events.

### **Context & Constraints:**

Records on damage and loss data and relief provided are kept in Government offices only for about five years; therefore, such data is not available in Government offices for validation prior to 2005 in most cases.

Officers are experiencing difficulties in using the database without assistance. Planning Officers need to be trained as to how data could be analysed.

Non-availability of a proper mechanism for sharing of data within agencies

## **Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

**Description:**

Fifty-five Early Warning Towers with siren/voice facilities and satellite/VHF communication are operational along the coastal belt. The system is being tested and monitored regularly.

Plans are underway to establish 25 additional towers in 2011. The EOC is operational on a 24/7 basis with links to all major stakeholder agencies. Several additional communication pathways such as Police communication, mobile messaging (Dialog and Mobitel), and electronic media are also available.

SOPs for early warning dissemination are available.

Early Warning Centres are connected to relevant regional/global centres for rapid reception of early warning information.

A Doppler weather radar system is planned to be installed in early 2011 to improve short-term heavy rain forecasting products.

A system of automated rain gauges is available in landslide prone regions to help in landslide forecasting.

Predictions, forecasting, and early warning for disease outbreaks are carried out on surveillance data. A system is in place for rapid response. The county is linked to regional and global early warning networks. Activities are being coordinated with the WHO through the focal point of IHR in the Ministry of Health.

A toolkit to assess community preparedness on early warning is being developed. An early warning training manual is being developed for user agencies.

An effective people centred early warning system was established with the participation of early warning teams (volunteers) using local communication methods (bells, horns, etc.). The local level hazard monitoring system is being introduced for community level decision making.

**Context & Constraints:**

High cost of maintaining sophisticated communication systems such as satellite based systems.

Non-availability of concessionary rates for communication facilities for emergency related purposes affects the operation of redundant communication systems.

People's tendency of not responding to early messages with the passage of time

## Priority 2: Core indicator 4

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

### Level of Progress achieved:

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### Does your country participate in regional or sub-regional DRR programmes or projects?

Yes

### Means of Verification:

\* Yes: Programmes and projects addressing trans-boundary issues

\* Yes: Regional and sub-regional strategies and frameworks

\* Yes: Regional or sub-regional monitoring and reporting mechanisms

\* Yes: Action plans addressing trans-boundary issues

> Disaster Free South Asia Call for Action (2008)

[http://www.preventionweb.net/files/15417\\_disasterfreesouthasiacallforaction.doc](http://www.preventionweb.net/files/15417_disasterfreesouthasiacallforaction.doc) [DOC ]

### Description:

The focal point for IHR to manage trans-boundary risks on communicable diseases is in place at the Ministry of Health. Protocols are available for notification of public health emergencies of international concerns through the WHO. A mechanism is in place to cooperate with the WHO on risk reduction. Facilities are available for screening at entry points to the country to minimise the importation of epidemic prone diseases.

Global and regional links were established with local technical institutions to exchange information.

The first responder team was established for chemical and biological emergencies. Arrangements have been made with global and regional responders to attend to major oil spills.

Sri Lanka participated with countries in the Asian region in the tsunami early warning exercise initiated by UN agencies in 2009.

Atomic Energy Authority of Sri Lanka conducted a training programme for a limited number of officers from the Armed Forces, Police, Colombo Fire Brigade, and GA Divisions in the north on how to respond to nuclear accidents.

Sri Lanka continuously exchanges information on cyclone risk in the Bay of Bengal with Indian Metrological Department.

### Context & Constraints:

Absence of a regional tsunami early warning system for the Asian region (similar to PTWC for Pacific).

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## Syrian Arab Republic (in English)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and*

*include risk assessments for key sectors.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

-- Nothing reported within this timeframe. --

**Means of Verification:**

- \* No: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

Work is going on establishing a database and maps for different hazards such as earthquakes, besides collecting, analyzing and evaluating all data related to hazards that occurred for the last thirty years. As for schools and hospitals work has started in evaluating a large number of the main schools and hospitals, in addition to strengthening and rehabilitating the weak buildings. As for recently built schools and hospitals, they are subject to the standards of safety and resistant to earthquakes.

**Context & Constraints:**

Due to the large number of schools and hospitals, time for evaluating all these buildings is a challenging issue.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

- \* Yes: Disaster loss database
- \* Yes: Reports generated and used in planning

**Description:**

The database for hazards is being analyzed to be used in the future regional planning, also work is under going on improving coordination and cooperation between various stakeholders to unify and develop databases to reflect the requirements of all parties.

**Context & Constraints:**

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**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

**Description:**

There are early warning systems being developed for different types of risks such as wild fires through installing new equipments for predicting the occurrence of fires.

As for the early warning towards drought: work is under going to use remote sensing, and automated monitoring system for meteorology which can help in predicting dust storms.

In addition to the above there is an early warning system for predicting earthquakes (GPS systems) placed near seismic faults.

Also work has begun on providing industrial cities early warning systems for industrial fires and explosions, in addition to the existence of early warning systems for oil spills and oil pollution on beaches.

**Context & Constraints:**

There is a need for the development and capacity building for typical use of the existing systems.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

**Description:**

There is a close cooperation with Turkey in the field of wild fires noticing the subject of early warning and response, in addition to the joint coordination for the risks resulting from the increasing of riparian rivers levels.

Also there is cooperation agreement with Jordan, Tunisia, Malta, and Switzerland in the field of response and providing assistance. Work is on going to develop regional and sub regional cooperation through the preparation of agreements with a number of other countries.

**Context & Constraints:**

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**Thailand** (in English)**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

**Means of Verification:**

- \* No: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* Yes: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

Risk assessments at national and local level are carried out by competent and experienced national agencies, namely Department of Mineral Resources (DMR) for geo-hazards; Royal Irrigation Department

(RID) and Department of Water Resource (DWR) for water related hazards; Thai Meteorological Department (TMD) for weather and earthquake monitoring; National Disaster Warning System (NDWC) for Tsunami monitoring and warning. These data and information are available for other key agencies such as Department of Disaster Prevention and Mitigation to make use of the information for DRR program/project development and communicate with respective offices at regional and provincial level for timely preparation and response.

**Context & Constraints:**

The hazard mappings for disaster are not available for all the regions of Thailand such as for earthquake, floods and landslide. Moreover, the government agencies which prepare the hazard mapping using different scale and parameters; therefore, Thailand does not have standard mapping for risk prone area. As well, the digital mapping is requiring the experts implementing. So, it is difficult for local community to understand. The integration among related agencies has some gaps and lacking of effective operation system for disaster management for all phases of disaster.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Are disaster losses systematically reported, monitored and analysed?**

-- Nothing reported within this timeframe. --

**Means of Verification:**

\* No: Disaster loss database

\* No: Reports generated and used in planning

**Description:**

Thailand by responsible national agencies has systems in place to monitor, archive and disseminate data on key hazards and vulnerabilities, such as tsunami, landslide, telemetering for flood, and earthquake. Besides, we also set up the community-based systems to monitor flashflood and landslide in the risk prone areas. The information dissemination are providing in the manual, CD-Rom, web-site and other channels. The data base development and updating is accordance with the user requirement. Besides, the warning messages, the data of hazard and vulnerable areas are existed and developing for real time forecasting.

**Context & Constraints:**

Though systems are available, in times of increasing and wider impact of disasters, the existing systems are not able to effectively mitigate the impact. Besides, most of people living in risk areas are not yet well aware of the risk. They sometimes do not follow the warning or instruction from the authorities. As per government side, information on risk and hazards are not friendly for lay people and users. The development of data base is required the commitment, skills, resources and participation of all sectors to fulfill the goal of safer community. All agencies concerned are preparing mapping individually and we are requiring expertise to update the hazard mapping. Therefore, it is necessary to integrate the resources and designate the function clearly together with provide training course for users at all levels.

The amount of early warning equipments for tsunami/earthquake are limited and are not covering all areas such as seismic stations, warning towers and buoys in the Andaman Coastal. Moreover, the maintenance costs are very expensive under limited budget and the limitation of officers to 24 working hours for

monitoring the disaster situation. The media does not recognize how severely of disaster when it receives the warning messages they are not disseminate messages immediately.

The recommendation is to develop dissemination to autonomic and continually. In addition, human development capability is essential for warning system and urges the understanding with media for advance forecasting.

### **Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

#### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

#### **Do risk prone communities receive timely and understandable warnings of impending hazard events?**

-- Nothing reported within this timeframe. --

#### **Means of Verification:**

- \* No: Early warnings acted on effectively
- \* No: Local level preparedness
- \* No: Communication systems and protocols
- \* No: Active involvement of media in early warning dissemination

#### **Description:**

Thailand has several agencies responsible for developing and maintaining early warning systems for Thailand's major hazards, namely flood, landslide, drought, and earthquake/tsunami. Protocols for warning or advisory message are established and implemented. Every disaster management related agencies understand their roles and responsibilities when disasters are expected. Mass media and TV pool are the main means of public communication. National DPM Plan also appointed structures and mechanisms to ensure that the early warning message and instruction are reachable at all administrative levels. At the village level, Thailand also trains local people/volunteers to be Mr. Disaster Warning for monitoring and delivering warning messages within their communities and installing the raining gauge and manual siren to local communities.

#### **Context & Constraints:**

At the national efforts for early warning, ministries and departments concerned cannot optimize their own plan and systems due to the fact that the Government does not dedicate resources and budget for a more advanced technology to develop multi-hazard early warning systems. For example, weather forecast cannot be done precisely at community or sub-district level. In addition, at the local level, not all risk areas have early warning systems. This result in losses that can mitigated at an early stage.

### **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

#### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Does your country participate in regional or sub-regional DRR programmes or projects?**

-- Nothing reported within this timeframe. --

**Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues
- \* No: Regional and sub-regional strategies and frameworks
- \* No: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

**Description:**

At the regional level Thailand is a member of ASEAN and has participated ASEAN Committee Disaster Management: ACDM which has the ASEAN Agreement on Disaster Management and Emergency Response (AADMER) for disaster risk reduction framework and also the member country of Asian Disaster Reduction Center for sharing information and visiting researchers. Whereas, at the global level Thailand takes part in implementing HFA by mechanism of SNAP for disaster risk reduction and also as a member of WMO under UNESCAP implemented the risk reduction related to water disaster such as tropical cyclones.

**Context & Constraints:**

The collaboration among member countries has gaps of technology, equipment and expertise; therefore, the recommendation is sincerely sharing resources among member countries.

**Yemen** (in English)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

**Means of Verification:**

- \* Yes: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments

\* No: Agreed national standards for multi hazard risk assessments

### **Description:**

Yemen during this period with the efforts of other agencies concerned conducted a partial assessment for some of the risks. This assessment did not circulate to all sectors and all potential risks in the State. The distribution of vulnerability and capacities depending on the type of sex in this part of the evaluation. However, analytical data were available through 2007 – 2009 in particular and were provided with budgets and proposals to help the decision-makers to include them within the development plans to take the necessary decisions.

The EPA carried out appropriate steps with the MPIC for the integration of environmental dimension in the budget of five-year plan for each sector, and identified three areas for action in 15 years to come, including plans to adapt with negotiation in the various national, regional and international levels, and how to achieve the role of the EPA in planning activities, projects and programs implemented legally by the authority. It also prepared plans for the development of human resources commensurate with the needs of the strategic action plan included a unified system .

MAA said that there is a tangible progress in the part of the developing and updating data, information and maps of the areas at risk (e.g. areas prone to earthquakes and volcanoes, areas at risk of sea-level rise).

DMU is being supported by the UNDP said an initial assessment report from this project highlights a list of priority actions and priority intervention locations which are Al-Mahra, Hadramout, Aden, Shabwa, Abyan, Lahj, Taiz, Hodeidah, and Hajja. It also lists the key players that need to be involved in these areas. The project has supported community awareness programs in two pilot areas – Al-Mahra and Socotra Island. To add, and a tsunami risk consultancy for potential tsunami threat, the location of the most vulnerable areas and people exposed.

### **Context & Constraints:**

financial and coordinating constraints, the absence of evaluative standards that determine risks and develop procedures, lack of skills and training, scarcity of supplies and equipment

The EPA sees that the most important challenges the government or the national authorities faced were to develop the strategic plan which needs specific environmental policy ,urgent thinking, authorization and publishing. They include:-

1 - completing the policy statements regarding:

- The polluter pays principle.
- The data and information of the EPA systems and legislation.
- Incentives for small investors.
- The license for inspection entities.

2 - Searching for serious cooperation among the different sectors to work with the General Authority for the protection of the environment according to a more smoothly mechanism, so as to make its data and results available to the EPA.

3 - Preparing a program for the pricing of environmental resources to reflect the real value to society and estimate the cost of environmental degradation.

4 - The EPA depends on its role by small projects across the international environmental programs and conventions and they are not a sustainable source of funding; so there should be bigger financial obligation than of the government to allow the EPA to implement its role perfectly through the provision of the

necessary financial and funding resources to sustain its activities and cover all the local environmental aspects.

In the view of SVOC that the most important constraints is the absence of clear criteria for the organization of earthquake-resistant building since Dhamar earthquake in 1982 .To be informed the seismic information indicate that the province would be exposed to earthquakes in the future

## **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### **Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

### **Are disaster losses systematically reported, monitored and analysed?**

No

### **Means of Verification:**

\* No: Disaster loss database

\* No: Reports generated and used in planning

### **Description:**

Losses are announced after the occurrence the disaster. Reports and follow-up analysis are implemented by most of the governmental directions in an ad hoc independent way on the level of each sector, based on the efficiency and responsibility of this direction. Decision-makers show their concern by the subject and analysis of those reports ends by mandating and compensating residents for their property to recover after the disaster. The concerned direction gives requirements, and it could be a personal initiative by traders, while the rest of the related directions, the importance of such information depend on the responsibility of that direction and its duties towards the disaster. Within the two past years such reports began to develop into plans gathered in the MPIC, especially after the disaster of Hadramout, but it lacks the database on disasters.

And there is a little advantage from the seismic risks information and mechanisms of its updating. The availability of methods of controlling or monitoring requires achieving the objective of availability. Information is monopolized sometimes.

By UNDP:

- Establishing a (DMIS) Database in NDMU
- Yemen Base map for GIS system complete.

As a regional initiative from UN-ISDR and UNDP Disaster data collection established launched recently .IT department started to collect disaster data in Yemen which happen in the last 30 years, those information will be integrated with the available GIS system base map during project's DesInventar, use project server in IT department as the main disaster database server in Yemen.

National authorities and particularly the Prime Minister's Office are taking the lead to ensure that DRM is mainstreamed into national development planning. As a result of a shift from a reactive to a proactive approach to risk management, DRR measures are leading to more systematic risk identification and assessment.

### **Context & Constraints:**

- Dispersion of data and information, and the weakness of investigation and scrutiny.

- Inefficiency of collection, analysis and dissemination of data methods.
- The absence of historical information.
- Overlapping of responsibilities and lack of coordination.
- Indifference and negligence about the importance of information as soon as the disaster disappears.
- Delaying of the implementation procedures.
- Lack of experience or lack of efficiency as well as lack of systems and equipment needed to accomplish the task.
- Scarcity or the lack of adequate financial allocations of funding and in a timely manner.

Specific environmental problems are usually dealt with using a mix of policies consists of a variety of tools, monitoring, control, economic instruments and tools for persuasion. The effectiveness and efficiency of economic instruments depend always on the macroeconomic policy mix. The perfect tool should achieve its purpose with the lowest possible cost and at the same time helps to improve the efficiency of resource use, increases productivity and economizes in scarce resources (such as capital, skills and management). It is also desirable that the tool should encourage change towards development and builds technologies that are more efficient and less wasteful for production. In this regard, transitional priorities of the country clearly prefer cost efficiency and flexibility of economic instruments on the harshness of unit-cost tools for command and control, and regular meetings can operate to update the data and exchange of experiences.

Data sharing is not a common practice, hindering the development of national risk reduction and resilience.

## **Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### **Do risk prone communities receive timely and understandable warnings of impending hazard events?**

No

### **Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* No: Local level preparedness
- \* No: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

### **Description:**

EWS did not include the legal framework so far in the majority of disaster management systems, but several points are engaged in some early-warning functions of these national bodies if appropriate resources were ensured within an appropriate coordinating mechanism. Such authorities and their tasks are as follows:

1. For geological hazards; the SVOC.
2. For desert locust attacks, the National Desert locust Combating Center
3. RSC, under the supervision of the Ministry of Communications and Information Technology.
4. Climate and meteorological hazards, the EPA.
5. MC under the supervision of the Ministry of Transport.

- 6. Authority of Water Resources, under the supervision of the MWE
- 7-CDA, under the supervision of the Ministry of Interior.

And most of these centers has a branches in a number of governorates.

There are no effective early warning systems, or a local readiness. Media instruments and Meteorology and weather devices imported two years ago participate to warn citizens of the dangers weather, but had not been completed yet. The sirens which have been developed recently are used within the some cities.

By the succession of disasters in Yemen, authorities initiated to find an EWS and were established in the following main cities: Sana'a - Aden - Taiz - Hodeidah and Mukalla, along with providing some equipment for visual surveillance and sirens.

Formal national EWS have yet to be developed, and efforts to update it with support from the UNDP for DMU are underway

**Context & Constraints:**

- The lack of early warning systems with the absence of financial allocations.
- Lack of awareness at the levels of authority and communities.
- The lack of a unified information network.
- Non-availability of means to deliver warnings to all areas of the country 24 hours a day like the media instruments and this is due to the lack of electricity in rural areas and power outages in cities that may paralyze the country.
- Poor coordination between the relevant agencies and local authorities.
- The absence of rehabilitation and training.

It is proposed to: provide financial resources and launching validities for the concerned authorities in matters relating to disasters; to do what needs to be done, especially in the critical situations, raise public awareness and cooperation with the telecom companies and to build the national capacities at the level of the relevant government agencies and local communities. As well as the need to overcome all the challenges mentioned above to achieve the desired goal of disaster reduction and mitigation in order to preserve life and property.

There is a need to perform a search on this topic Information and data will help better to verify the causes of hazards and the best ways to deal with their environmental and healthy results.

Improving the functionality of any early warning system, including in Yemen, is critically dependant on improved coordination and information sharing among DRM agencies.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

- 1 - Minor progress with few signs of forward action in plans or policy

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

\* No: Programmes and projects addressing trans-boundary issues

\* Yes: Regional and sub-regional strategies and frameworks

\* Yes: Regional or sub-regional monitoring and reporting mechanisms

\* No: Action plans addressing trans-boundary issues

**Description:**

Yemen participated in a number of regional and international activities dealing with issues of cross-border , regional strategies , reporting and so on. The fact that participation in all of these events is a part of cooperation with the international organizations that provide support and assistance to Yemen. For sharing information, both at the level of countries in the region or at the global level, Yemen receives information pertaining to the cause of disasters, such as meteorological information and marine forecasts because the cooperation in this field is necessary at all levels. But Yemen is not able to provide the countries of the region and the sub-region information adequately about such disaster, due to deficiencies and as we stated in the terms of this template.

Yemen has signed the Kyoto agreement on climate change, and there are efforts to monitor and control the Red Sea and Gulf of Aden and the Arabian Sea - PERSGA - that Yemen is one of six members and play an important role ,as well as ,interventions to limit the intercontinental epidemic diseases such as Swine Flu and fatal childhood diseases through continuing the immunization campaigns, and efforts to eliminate the epidemiology of livestock through monitoring and evaluation, surveillance and routine immunization campaigns.

There is a regional cooperation, especially with the neighboring countries of Yemen, in which a number of quarantine and veterinarian places were established at the entrance to the border and airports, and the local cadres are keeping working side by side with the relevant authorities.

The DMU supported by the UNDP may partner with Oman to share early warnings about tsunamis with coastal communities and is seeking to collaborate actively with Gulf Cooperation Countries in developing a regional mechanism in areas related to DRR.

**Context & Constraints:**

There are a number of obstacles facing the decision-making and planning management; the first is the lack of reliable and new information about indicators of human activities on the environment and natural resources, at the same time, the results of environmental degradation and non-rational use of natural resources in the sustainable development processes. The second obstacle is the inadequate management of data and information as a result of a combination of factors, including lack of financial resources and trained manpower and lack of awareness and availability of information and institution building. There are challenges related to environmental information collection, and publication. In addition to that, the monitoring organizations do not feed their results in a general information system .There is a lack of the comprehensive approach, too.

These obstacles can be overcome by the dedication, first to adopt scientific methods in solving problems, and establishing local and national units of disaster management in all countries of the Region to work hardy in cooperation and coordination in one window. And also to look for multiple national and international sources of funding and allocating a fixed budget from the state budget of each country; to be able to train personnel and conduct extensive studies to build a broad base of information from which decisions of environmental reform in accordance with long-term strategic plans. Instead of creating a disaster management, it could be establishing a Ministry of disaster management in each country to take up this matter.

# Europe

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## Armenia (in English)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

#### Level of Progress achieved:

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

#### Is there a national multi-hazard risk assessment available to inform planning and development decisions?

Yes

#### Means of Verification:

- \* Yes: Multi-hazard risk assessment
- \* 32 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* Yes: Agreed national standards for multi hazard risk assessments

#### Description:

In accordance with the recommendations of HFA the spheres of activity envisage basic indicators of monitoring, review of the progress and difficulties in carrying out the thematic of DRR:

1. The operations concerning the formation of data banks on dangers are completed: land-slide, mud-slide, flood with respective characteristics of conditions of inundation and under flooding; geodynamical condition of the territory of the republic and its zoning according to the degree of mud-slide risk; assessment of the contamination risk of water systems with chemical compounds of industrial wastes; the condition of pressure hydro technical, land reclamation and other engineering institutions.
2. Periodical control is carried out in all the mentioned regional systems and local objects and archive sources reflecting operative situation of key dangers and vulnerability are accumulated.
3. Elaborations on basic threats are partially functioning (land-slides, breaks of hydro institutions) and basically they are carried out for the formation of systems of early warning for informing the personnel of objects and population, which are within the zone of catastrophic influence.
4. National, regional and local assessment of risks envisages regional cooperation in the sphere of risk prevention and reduction.

#### Context & Constraints:

Marking certain achievements in performance progress, "the basic indicators", specified above, it is necessary to note the basic difficulties of national structures and the partner organizations concerning their mapping non-uniformly scaled material (M 1:10000: 1:5000: 1:2500: 1:2000: 1:1000), for modeling of conditions, a mark of a possible damage and division into districts of territories on risk degree. Level of progress in the field of initiatives and target programming and planning of problems on risk decrease reached for the accounting period will allow to solve questions of standardization of a technique

of quantitative definition of damages on display of numerous processes of natural - technical genesis, to use cartographical and mathematical modeling of natural-technical systems with the forecast of possible extreme display of this or that process, are developed adaptable and preventive protection of territories and the population on the basis of division into districts on risk degree.

## **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### **Are disaster losses systematically reported, monitored and analysed?**

Yes

### **Means of Verification:**

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

### **Description:**

The national complex evaluation of risk promotes acceptance of rational decisions in the field of planning and development.

In particular in Armenian Rescue Service (ARS) of the Ministry of Emergency Situations of RA the elaboration of documents has been executed:

“The basic directions of increase of stability of functioning of economy in emergency situations”,

“Social-economic problems of emergency situations and the system analysis of an exit from emergencies”, “The qualitative and quantitative evaluation of damages of consequences of emergency situations and settlement mechanisms of increase of readiness of economy to functioning in emergency situations”.

Achievements in the field of institutional adherence of the country to reaction to various dangers and its social, economic and ecological vulnerability have found reflection and support in legislative base of the state and special governmental orders of RA:

- Laws of RA – “On population protection during emergency situations” - 02.12.1992., “On Seismic protection”-12.6.2002,

- Government decisions – “On Conception on assistance state policy during emergency situations” (N 726 from 19.11.1998); “On statement of an order of elaboration, examination, coordination and statement of general layouts of cities and rural communities” (N 609 from 02.03.2003); “On works on evaluation of damages caused by emergencies to buildings and constructions, being in state ownership” (N 753 from 14.08.2010); “On resettlement of tenants from inhabited emergency buildings” (N 130 from 05.03.1999); “On order of the organization of the urgent assistance to the population at droughts, other acts of nature and technical accidents” (N 248 from 13.03.2008).

Especially it is important to note the performance of researches by a complex evaluation of influence natural-technical disasters on activity in the field of town-planning development of territories and certification of safety of before erected buildings.

It is important to note the work of National service of seismic protection of Ministry of Emergency Situations of RA under the recommendation of increase of stability and operational reliability of buildings in the cities Gyumri, Vanadzor, Kapan on the basis of tool definition of physical characteristics of bearing constructions of buildings, and also seismicity with recommendations about strengthening of constructions: 46 schools of Yerevan were examined for assessing exploitation risk with granting of recommendations on vulnerability

reduction (2005-2007).

For complex evaluation of DRR on vulnerability of buildings and constructions from natural-technical emergencies the Ministry of urban development of RA (2008) has developed the following national standards and methodical positions:

- A study guide on realization of researches of a technical condition, seismic and operational safety of inhabited and public buildings;
- Certification of buildings and constructions;
- Statement about researches of industrial buildings and constructions.

Armenia is a small highland country with a sharp continental climate; mountain and foothill sites occupy over 70 % with her geodynamic types of territory. Geodynamic position, high irregularity relief and seismic conditions promote display of dangerous natural-technical processes.

Marking the fruitful work of the Center of monitoring of Department on protection of the population and territories of ARS of the Ministry of Emergency Situations of RA on gathering, generalization and the timely analysis of a condition and threats from dangers and risks of natural and man-made accidents, it is necessary to note that the Monitoring Center needs technical re-equipping and thanks to the " Program of preparation for disasters and strengthening of national capacities on risk reduction" UNDP, the program "Creation of the observant centre for natural disasters" is carried out that will undoubtedly increase the capacities of Monitoring Center.

### **Context & Constraints:**

The complex evaluation of multiple-factor synergetic connected processes and risk management is an important state problem.

It is important to note that the negative evaluation of dangers on the territory of the Republic is carried out practically everywhere as in respect of the natural phenomena in natural-technical system, and in respect of technical filling. Qualitative evaluation of damages caused by dangerous processes is in stage of the stage-by-stage solution in each continuous geological display.

### **Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### **Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

### **Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

### **Description:**

The assessment of four elements of the early warning from possible HFA - knowledge of risk, monitoring and prevention service, distribution of the information and communication, reaction potential, is in the Republic at various levels of development and the realization, which demands separate consideration.

## Risk knowledge

In some special, disastrous dangerous zones of development of the natural phenomena and technogenic processes the scientific elaborations are fulfilled.

- a) In particular, the department of seismic safety of MES of RA has developed mechanisms of an estimation of seismic risk for the territory of the Republic (2005) and for territory of Yerevan (2007).
- b) Creation of a map of quantitative evaluation of seismic risk of territories of RA on the basis of seismometric potential and engineering-geological conditions with taking into account natural and technogenic factors on the basis of GIS-TECHNOLOGIES (2007)
- c) The elaboration of methodical guideline according to damages and risks of losses from earthquakes (ARS of the Ministry of Emergency Situations of RA – 2006-2007)
- d) The Program on estimation of natural-technical, social, ecological-economic, biological, agricultural plans for territories of RA (ARS of the Ministry of Emergency Situations of RA 2008-2010) is in final stage
- e) The elaboration of methodology of the automated analysis of degree of environment pollution by manufactures with strong poisonous substances on chemically dangerous objects (CDO) ARS of the Ministry of Emergency Situations of RA – 2005-2006.
- f) The evaluation of risk of possible failures on CDO, actions for decrease or prevention of dangers and protection of the population living in a zone of risk. Methodical recommendations about formation of passports of safety of CDO with mechanisms of prevention of emergencies. ARS of the Ministry of Emergency Situations of RA – 2006.

## Monitoring

Unfortunately, works on formation of three-level monitoring are suspended, but the positive elaboration on structure, budget, level-triggered to conditional appointment, organizational and technical works are finished and are on an expert evaluation.

At present, each ministry and administration has professional monitoring or control in his interesting directions. The information on periodic control is generalized in the end of the year, analyzed and transferred to the Seismic Control under the Government RA which forms the information on a year in the form of corresponding to each of names of reports with which the institutions and the population can get acquainted.

## Notification and danger warning system

The system of the early warning and notifying of population is developed for emergency situations connected with the estimation of risk in case of devastating earthquakes (the natural phenomenon), as well as at environmental contamination at failure on CDO and emission of radioactive substances in atmosphere (technogenic process), and also at possible break of pressure head hydraulic engineering constructions.

## Context & Constraints:

The centralized system of early warning of population does not functioning.

It is necessary to note the complexities in DRR warning in the mining industry. Unfortunately, in this area often causing serious economic infringements, it is learnt only through mass media.

## Priority 2: Core indicator 4

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

## Level of Progress achieved:

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

## Does your country participate in regional or sub-regional DRR programmes or projects?

Yes

## Means of Verification:

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

**Description:**

The national evaluation of risk provides its use in regional-transboundary cooperation, information exchange and early warning as well as accessible information on the data of regional risks. In particular, in 2004 National Service for Seismic Protection of the Ministry of Emergency Situations of RA together with Institute of the Urbanization of Georgia and Institute of Seismology of Azerbaijan has developed the mechanisms of risk evaluation of seismic zoning maps of territory of Yerevan, Tbilisi and Baku by united methodical indications with an exchange of materials and results of researches. In 2003 ARS of the Ministry of Emergency Situations RA together with Security Department and the Ministry of the Urbanization of Georgia have carried out teamwork according to risk of damage of adjacent territories and transport communications from natural-man-made processes in 50 km zone from each of the countries. The work was carried out on the basis of the intergovernmental agreement. Realization of the Program of researches and investigations and the report with the appendix of maps of the Georgian models of scale 1:100000 (regional level) 1:25000 have allowed to estimate risk of infringement of the transport communication between the countries and to recommend actions of engineering protection of territories and transport communications.

**Context & Constraints:**

Because of absence of diplomatic relations with Turkey and Azerbaijan the joint regional and transboundary solution of problem on DRR are impossible at present.

**Bulgaria** (in English)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

**Means of Verification:**

- \* No: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)

\* No: Gender disaggregated vulnerability and capacity assessments

\* Yes: Agreed national standards for multi hazard risk assessments

**Description:**

Manual for risk assessment of the potentially dangerous water objects and objects from the chemical industry and atomic energy is available.

**Context & Constraints:**

n.a.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

\* No: Disaster loss database

\* Yes: Reports generated and used in planning

**Description:**

Chief Directorate Fire safety and Civil Protection has a National Operational Communication and Information center that is gathering all data related to hazards and disasters and support the decision makers.

Use of system RAMO and RODOS;

Integrated system for emergency management, developed database for resource security of the country

**Context & Constraints:**

not applicable

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

-- Nothing reported within this timeframe. --

**Means of Verification:**

\* Yes: Early warnings acted on effectively

\* Yes: Local level preparedness

\* No: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

**Description:**

As of 09.2008 in Bulgaria is functioning a modern nationwide System for early warning and announcement in case of disaster. The system will have 2 subsystems:

- Subsystem 1 for announcement of authorities and the parts of Single Life-Saving Integrated Rescue System - with a capacity up to 28 000 officials with a possibility to be included all managerial levels - from the President to the lowest local level.
- Subsystem 2 (The Siren system) for early warning and announcement of the population of the country- covers 30 % of the population of the country and 5 % of its territory - the ten biggest cities.

**Context & Constraints:**

A big constraint is that 70 % of the population and 90 % of the territory of the country still use the old early warning and announcement system

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Does your country participate in regional or sub-regional DRR programmes or projects?**

-- Nothing reported within this timeframe. --

**Means of Verification:**

\* Yes: Programmes and projects addressing trans-boundary issues

\* No: Regional and sub-regional strategies and frameworks

\* Yes: Regional or sub-regional monitoring and reporting mechanisms

\* No: Action plans addressing trans-boundary issues

**Description:**

Close cooperation on risk reduction with all countries and relevant institutions in SEE; joint projects with the neighbouring countries on critical infrastructure protection.  
bilateral agreements for cooperation in case of disasters with most of the neighbouring countries

**Context & Constraints:**

not applicable

## Czech Republic (in English)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

#### Level of Progress achieved:

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

#### Is there a national multi-hazard risk assessment available to inform planning and development decisions?

No

#### Means of Verification:

- \* No: Multi-hazard risk assessment
- \* unknown % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* Yes: Agreed national standards for multi hazard risk assessments

#### Description:

Multihazard assessment has been done for some areas or cities but not at the level of the whole state.

#### Context & Constraints:

The main problem is that all measures have been developed for floods - which are far more frequent disaster type. Much less has been done for other types of disasters which are occurring relatively rarely.

### Priority 2: Core indicator 2

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

#### Level of Progress achieved:

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

#### Are disaster losses systematically reported, monitored and analysed?

Yes

#### Means of Verification:

- \* No: Disaster loss database
- \* Yes: Reports generated and used in planning

#### Description:

Special projects analyzing recent losses caused by bigger floods have been launched by the government after each such event showing some gaps, losses and also proposals for future avoiding drawbacks encountered. The reports dealing with evaluation of these floods could not be attached as they are larger than 8 Mbytes.

**Context & Constraints:**

Financial constraints can limit the scope of such projects.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

5 - Comprehensive achievement with sustained commitment and capacities at all levels

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

**Description:**

As floods encountered in the country very often caused that the system for early warning for floods and other kinds of disasters has been continuously developed, applied and improved from the state level to regional and community levels - in a systematic way. Media like TV or radio have always been involved for dissemination of warnings and related information.

**Context & Constraints:**

Preparedness to DRR at local level should be improved and there have been financial and sometimes also capacity problems. Another problem is relatively low activity of NGO at the community level in DRR process.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

**Description:**

The Czech Republic has been cooperating on flood protection and warnings by means of participation in Elbe, Oder and Danube river commissions.

National platform cooperates closely with the platforms from Germany, France and Poland in the framework of European network of national platforms (ENNP). Some projects have been submitted to European Commission but have not been approved yet. In November 1 and 2, a special Workshop devoted to Flash Floods and early warning organized by the Czech platform, ENNP and the Czech Hydrometeorological Institute will take place in Prague.

**Context & Constraints:**

The Czech Republic shares catchments of some rivers and closely cooperates with its neighbors especially in data and warning exchange.

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## Finland (in English)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

**Means of Verification:**

- \* No: Multi-hazard risk assessment
- \* 100 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

The risk assessments are done at local, regional and national level. Government Resolution and the related document (Strategy for Securing the Functions Vital to Society) define society's vital functions and establish targets and development policies that will guide each administrative branch of the government in dealing with its strategic tasks in all situations. Ministries are also designated responsibilities for co-ordinating these functions. In this Resolution, strategic tasks refer to tasks which are needed to secure the functions vital to society in all situations. They are based on current legislation and the existing division of powers between the different authorities.

All the ministries, sector organizations, Statistics Finland and Association of Finnish Local and Regional Authorities support the municipalities by collating statistics and providing data for risk analyses.

National level authorities are commissioned to perform risk and vulnerability analysis within their area of responsibility and also take care that the risk assessments are done regionally and locally.

Rescue plans are done in each school and hospital. Local level authorities (fire inspectors) control in a yearly fire inspections that these plans are in place and that they are up to date. In addition to this, schools are required to have a safety and security folder where all the relevant safety and security threats are identified and terms of reference are given for security or safety incidents.

**Context & Constraints:**

At the national level the negative impacts of climate change are being studied for national risks and vulnerabilities. The municipal and regional levels are not yet able to address climate change issues and the potential consequences with the same focus.

National level risk and vulnerability data and knowledge is not easily accessible to local level or they don't have the resources to utilize it.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

**Description:**

The Finnish Meteorological Institute is a research and service agency under the Ministry of Transport and Communications. The Finnish Meteorological Institute produces high-quality observational data and research findings on the atmosphere and seas. The Institute uses its expertise to provide services that promote public safety and enhance wellbeing among people and in the environment.

#### Finnish Meteorological Institute

- observes the physical state, chemical composition and electromagnetic phenomena of the atmosphere
- observes the physical state of the Baltic Sea and the Arctic sea area
- produces information and services about the past, present and future states of the atmosphere and seas
- conducts high-standard research in the fields of meteorology, marine sciences, air quality, space physics and earth observation
- carries out competitive commercial activities, based on expert services, both in Finland and abroad
- takes an active part in national and international cooperation
- actively disseminates information about matters associated with the atmosphere, seas and near space
- foresees changes and responds quickly to changes in the environment and to changing expectations.

The Finnish Environment Institute (SYKE) supports water protection and water resources management by multidisciplinary research, by collecting information and by developing assessment tools and sustainable solutions to issues of water supply, wastewater treatment especially in scarcely populated areas, hydraulic construction, and utilization of water resources. SYKE is also responsible for the monitoring and assessment of the quantitative variations of water resources, the status of surface and ground water bodies and various biological variables.

Changes in the status of waters are examined from a holistic perspective. The results of our research are used in socioeconomic evaluations of water-related issues and in making decisions concerning these issues. Among the most frequently used information services of SYKE are the nation-wide hydrological reports, forecasts and warnings which are based on extensive database material and on hydrological models.

#### Accident Investigation Board

The Accident Investigation Board investigates all major accidents regardless of their nature, including all aviation, maritime and rail accidents or incidents. Investigation report is prepared each time. The report also presents the recommendations, based on the conclusions of the investigation. All reports are written in Finnish with English summaries. An English version is prepared from significant reports.

#### **Context & Constraints:**

The basic monitoring, archiving and dissemination system are in place.

#### **Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

#### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

#### **Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

#### **Means of Verification:**

\* Yes: Early warnings acted on effectively

\* Yes: Local level preparedness

\* Yes: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

### **Description:**

At national level, people are warned of an emergency over the radio and TV. Emergency announcements are simultaneously transmitted via all radio stations and free TV channels nationwide. An emergency announcement interrupts all programmes irrespective of channel.

In the event of an emergency, people are warned at local level by the sound of the public warning signal. Outdoor siren system covers more than 80 percent of the population. The fixed outdoor siren system is supplemented by mobile loudspeakers and of course by TV and radio broadcasting system (RDS). Siren system with TV and radio broadcasting system makes it possible to warn a lot of people at the same time.

The siren system can be activated from the emergency response centers. A new emergency response centre system connects different safety authorities together and makes their flexible cooperation possible. Centralising the handling of urgent emergency calls for the police, rescue, social, and health services in joint emergency response centres (ERCs) has proved an efficient and economical way of providing versatile, high-quality ERC services. All the emergency calls are received in all-European number 112.

Finland built the world's first digital national radio network based on the TETRA standard for use by the safety authorities. The network enables top quality sound, data and moving image transmission even in extreme conditions. The primary users of the public authority network in Finland are the authorities responsible for public safety on both national and municipal level. The most important user groups are the emergency and rescue services, the Police, the Frontier Guard, the Social and Health Services, the Customs Authority and the Defence Forces. Although the network functions as an internal system for each respective authority, its sophisticated features mean it will improve the authorities' readiness for joint communication if required.

Finnish Meteorological Institute (FMI) together with Finnish Environment Institute and Institute of Seismology is developing a new early warning system for natural hazards called LUOVA (Luonnononnettomuoksien varoitusjärjestelmä). The system will produce analysed data and warnings both in Finland and abroad. It is based on the FMI's 24/7 weather forecast services and data received from Finnish Environment Institute and Helsinki University Institute of Seismology. The pilot phase of LUOVA is currently ongoing. The system will be operational in 2011 as part of governments' situation awareness centre.

At the same time systems and services for weather and flood observations, forecast and warnings are being developed. This relates to the continuous development of LUOVA and other warning systems to ensure updated hydro-meteorological warning services for authorities, businesses and the general public.

### **Context & Constraints:**

Communications need to be further developed to ensure that all responsible parties get early information in time of their specific responsibilities, including the general public.

### **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

## Does your country participate in regional or sub-regional DRR programmes or projects?

Yes

### Means of Verification:

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

### Description:

Finland has a long lasting and very close co-operation with Sweden and Norway in several areas. For example rescue services function over the border and the basic rule is that the closest and fastest unit handles the rescue work regardless of nationality. There are also frequent trainings between the Nordic countries.

Finland has also agreements on co-operation with Russia and Estonia. With regards to transboundary river basins, Finland has agreements with Russia (1965), Sweden (1971) and Norway (1980). Also, the implementation of EU's flood directive will advance flood risk management of transboundary river basins.

A satellite based "Fire Alarm" system for forest fires has been developed in Finland. The Satellite fire observation system has been designed to work continuously, and to automatically send alerts within 30 minutes after a fire has been detected. This satellite alarm system is unique in the world and it detects Finland and the border areas around Finland.

### Context & Constraints:

In the border areas there are co-operation especially in operative response.

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## Germany (in English)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

### Level of Progress achieved:

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

## Is there a national multi-hazard risk assessment available to inform planning and development decisions?

No

### Means of Verification:

- \* No: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed

- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

The "Federal Office of Civil Protection and Disaster Assistance" (BBK) published in April 2010 the "Method for Risk Assessment for Civil Protection" (Methode zur „Risikoanalyse im Bevölkerungsschutz"). It provides a scenario-based risk assessments based on area of interest, hazard, occurrence probability and damage magnitude. The method requires the cooperation of federal agencies like the Federal Statistical Office or the Statistical Offices of the Laender and others. GIS supported addition is under discussion.

From the federal perspective, the overarching goal is to reduce the impact of extreme incidents on critical infrastructures and to be better prepared to handle anticipated crises. As a result, the "Federal Office of Civil Protection and Disaster Assistance" (BBK: see the link below) has developed a guide, "Critical Infrastructure Protection: Risk and Crisis Management" in cooperation with the private sector, government authorities and a research institute (see the attached PDF). This guide offers methods for implementing risk and crisis management and practical tools in the form of examples and checklists. The guide applies to all sectors and is intended for companies and government authorities as a tool for self-analysis. It is separated in five phases: planning, risk assessment, preventive strategies, crisis management and evaluation. The "Federal Office of Civil Protection and Disaster Assistance" (BBK) has likewise developed its approach to provide a scientifically sound and practicable method for GIS-aided risk analyses in civil protection that is applicable to all administrative levels. It has also conducted its risk analyses for different hazards and subjects of protection at a national level.

Based on long-term data, the "German Meteorological Service" (DWD: see link) provides risk maps for the excess of certain extreme weather conditions, while the "Center for Disaster Management and Risk Reduction Technology" (CEDIM), in addition to other scientific institutes, develops national and country-specific risk assessments for natural hazards (see the link to the CEDIM Risk Explorer). They are also regularly in contact with institutions like the "German Association of Cities and Towns" or the "German County Association" in order to achieve the advancement of local assessment mechanisms. In particular, the floods of the last decade have sparked improved co-operation between the Federal States (Laender), the German state and other countries in forecasting floods.

The German insurance industry has sophisticated and detailed methods for risk assessment, including the "NATural Hazards Assessment Network" (NATHAN: see link) of the "Munich Re Group".

Munich Re revised its CD "World of Natural Hazards" which was published 2009 as a DVD "Globe of Natural Hazards". Beyond distribution of the different natural hazards and their intensities the DVD presents additional information about global change – climate change inclusively. For each point on the planet a local hazard assessment may be conducted based on all available natural hazards.

The German scientific landscape and other actors (such as the GTZ) have also begun implementing these methods with international partners, such as the "German Indonesian Tsunami Early Warning System", for example (GITEWS: see link).

The German development cooperation supports risk assessments in its partner countries depending on the level at which the cooperation takes place. These assessments include hazard data and vulnerability information to incorporate DRR-measures into the development plans.

The GRC for example conducts Vulnerability & Capacity Assessments (VCA) on site, which are the starting point of genuine DRR programmes at GRC. In this context, the GRC has, for many years, been using a participatory method by which local communities are enabled to recognize their vulnerability to existing natural hazards as well as their current capacity to help themselves. Local knowledge of natural hazards and pre-established structures such as evacuation routes, safe refuges or functioning village committees are taken into account and incorporated into the programme design.

### **Context & Constraints:**

National risk assessments are available, with a focus on risk identification and characterisation, in which critical infrastructure is currently identified as the main problem. However, an exhaustive examination and compilation of all available information (e.g., the meteorological data from the DWD) has not taken place due to a scarcity of resources. Therefore the DWD aims to increase its ability in some areas, such as the forecasting of precipitation to assure the projection of floods before they occur. Additionally, the "Joint Hazard Estimation of the Federal States (Laender) and the Federal Government" therefore aims to compile hazards (natural/technological/man-made) exceeding "day-to-day" hazards/crisis situations of national concern, as well as to identify risk hotspots, required additional/specialised capabilities, means/actions to decrease vulnerability and increase coping capability. This occurs through regular and event-driven updates and a yearly review of results, which is seen as the first step to a national risk map for the entire Federal Republic of Germany.

Since the Federal States (Laender) are responsible for disaster management, these assessments are organized and developed independently of each other, resulting in some challenges for an extensive analysis of both the local and national levels. For example, the institutions responsible for fire prevention (land/forest owners, forest management services) and fire response (ministries for the interior, fire services at the level of the communities) are aware of the general current wildfire hazard and its potential increase as a consequence of climate change. However, besides the general awareness that specific tree species/forest types bear a high wildfire risk (e.g., pine forests), systematic risk assessment databases and vulnerability information regarding fires are lacking. Since responsibilities for fire management (prevention and suppression responsibilities) are divided between different agencies and land owners, a systematic approach for joint inter-agency methodology and procedures for wildfire risk and vulnerability assessment is required and has been initiated by the DWD and the "Global Fire Monitoring Centre" (GFMC: see link).

As for international co-operation, the technical solutions for early warning systems often ignore the communication lines to those communities most affected by the disasters - warning systems, including dissemination and communication of information, need more attention from donor agencies and political decision makers, as seen from the perspective of German agencies. UNU-EHS is currently preparing a report on vulnerability indicators together with the "Federal Office of Civil Protection and Disaster Assistance" (BBK) and the "German Aerospace Center" (DLR: see link).

The German development cooperation recognizes the integration of climate change risks into risk assessments as one of the largest challenges because data for the local level is lacking, among other examples.

Supporting document:

Protection of Critical Infrastructures (2005)

[http://www.preventionweb.net/files/2967\\_ProtectionofCriticalInfrastructuresBaselineProtectionConcept.pdf](http://www.preventionweb.net/files/2967_ProtectionofCriticalInfrastructuresBaselineProtectionConcept.pdf)  
[PDF 2.14 MB]

Schutz Kritischer Infrastrukturen - Risiko- und Krisenmanagement (2008)

[http://www.preventionweb.net/files/2967\\_LeitfadenSchutzKritis.pdf](http://www.preventionweb.net/files/2967_LeitfadenSchutzKritis.pdf) [PDF 1.22 MB]

Related links:

CEDIM Risk Explorer <http://dc108.gfz-potsdam.de/website/riskexp/viewer.htm>

Deutsches Zentrum fuer Luft- und Raumfahrt (DLR) <http://www.dlr.de/>

Waldbrandgefahrenindex des DWD <http://www.agrowetter.de/Agrarwetter/waldix.htm>  
Global Fire Monitoring Center (GFMC) <http://www.fire.uni-freiburg.de/>  
NATural Hazards Assessment Network <http://mrnathan.munichre.com/>  
GITEWS <http://www.gitews.de/>  
CEDIM <http://www.cedim.de/>  
Deutscher Wetterdienst (DWD) <http://www.dwd.de/bvbw/appmanager/bvbw/dwdwwwDesktop>  
Bundesamt fuer Bevoelkerungsschutz und Katastrophenhilfe (BBK)  
[http://www.bbk.bund.de/cIn\\_027/DE/00\\_\\_Home/homepage\\_\\_node.html](http://www.bbk.bund.de/cIn_027/DE/00__Home/homepage__node.html)

## **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### **Are disaster losses systematically reported, monitored and analysed?**

No

### **Means of Verification:**

\* No: Disaster loss database

\* No: Reports generated and used in planning

### **Description:**

The "Federal Office of Civil Protection and Disaster Assistance" (BBK) runs a "German Emergency Planning Information System" (deNIS IIplus: see link) together with various partners from all areas of disaster management. It includes information about hazards (and other dangers), vulnerabilities and risks, but is not completed and currently does not attempt to address climate change risks. In its recently improved version - deNIS IIplus - it also delivers information for civil protection/disaster management (see detailed description in Priority 5). The DWD provides extensive weather forecasts and data through its Satellite Application Facilities and seeks to warn the public and the relevant authorities in case of an extreme weather event. Therefore, the DWD has reached an administrative agreement with the Federal States (Laender) in the areas of storm and thunderstorm warnings and water management. The prediction and consultation headquarters (Vorhersage- und Beratungszentrale: VBZ) in Offenbach is responsible for nationwide information, while the regional headquarters in Essen, Hamburg, Leipzig, Munich, Potsdam and Stuttgart each handle regional warnings. The DWD is currently working on a national warning centre to be established by 2010. The "Federal Environment Agency" (UBA: see link) and its "Competence Centre on Global Warming and Adaptation" (KomPass: see link), aim to identify future regional impacts of climate change and proactive adaptation to mitigate or at least minimize future losses.

Forest fire statistics are available for the whole country, although under the jurisdiction of the Federal States (Laender). At the federal level, statistics are compiled and distributed to key agencies and are publicly available on the website of the Global Fire Monitoring Centre (GFMC: see link). In some states, forest fire defence maps have been developed. The flood centres and local authorities, including responsible members of the fire brigades, collect data about hazards and vulnerabilities.

The NatCatSERVICE of the "Munich Re Group" (see link), with more than 26,000 data set entries, is one of the world's largest damage databases for natural disasters. Between 700 and 900 events are detected and analyzed annually. As a direct result, magnitude and intensity of single damage events can be

documented in different regions of the globe and be approached for regional and global danger analyses as well as to examine trends.

The “Helmholtz Research Network” (see link) also provides data on natural disasters in its “Natural Disasters Networking Platform” (NaDiNe: see link).

### **Context & Constraints:**

The challenges for deNIS and the “Joint Hazard Estimation of the Federal States (Laender) and the Federal Government” consist mainly of issues related to a lack of common understanding or appraisal of impacts: which losses are taken into consideration (e.g.: (1) capital stock risks such as damage to residences, lifelines/utilities, crops; (2) environmental risks, such as water/air/land pollution, loss of biodiversity; (3) economic risks, including reduced tax income or increased government expenditures, financial loss to government/business/residents; (4) social and cultural risks, including loss of life or injury and illness, loss of residence, decreased quality of life; (5) institutional and policy risks, such as liability, damage to reputation, increased distrust of government). Therefore experts from all areas of disaster reduction and management (including Public Private Partnerships) are integrated into a standardised structure that is currently in the process of development.

Furthermore, the precipitation prognosis of the DWD must be improved to be able to provide enhanced high water predictions and secure early warnings, the use and utility of statistics and fire defence maps to reduce wildfire risk has to be improved, and an open access rule for providing stakeholders with data needed for adaptation has to be established.

One of the DRR related activities of GRC is to ensure effective early warning on the community level (community based early warning). Therefore GRC and its partner national Red Cross / Red Crescent society are training local emergency committees on early warning and distributing early warning equipment. Furthermore the Red Cross movement concentrated on linking this community based emergency committees with governmental officials, who are observing natural hazards (meteorological department, regional Red Cross branches, national Red Cross headquarters). This linkage is essential to ensure effective local warnings.

Related links:

NaDiNe [http://nadine.helmholtz-eos.de/intro\\_en.html](http://nadine.helmholtz-eos.de/intro_en.html)  
Helmholtz Gemeinschaft <http://www.helmholtz.de/>  
Muenchener Rueck <http://www.munichre.com/en/homepage/default.aspx>  
Global Fire Monitoring Center (GFMC) <http://www.fire.uni-freiburg.de/>  
Bundesanstalt Technisches Hilfswerk (THW) <http://www.thw.bund.de/>  
Kompetenzzentrum Klimafolgen und Anpassung  
[http://www.anpassung.net/cln\\_046/DE/Home/homepage\\_\\_node.html?\\_\\_nnn=true](http://www.anpassung.net/cln_046/DE/Home/homepage__node.html?__nnn=true)  
Umweltbundesamt (UBA) <http://www.umweltbundesamt.de/index-e.htm>  
deNIS IIplus - deutsches Notfallvorsorge-Informationssystem  
[http://www.denis.bund.de/ueber\\_denis/index.html](http://www.denis.bund.de/ueber_denis/index.html)

### **Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

#### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Do risk prone communities receive timely and understandable warnings of impending hazard**

## events?

Yes

### Means of Verification:

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

### Description:

The “German Meteorological Service” (DWD: see link “Weather + Warnings”) has a multi-level warning system of three pillars: “Early Warning”, “Forecast/Premonition” and specific “County Warnings” which improve gradually in chronological and geographic sophistication. “Early Warning” as on week prognosis of risky weather events enfolds spacious areas like entire Federal States (Laender), while the “County Warnings” work as accurately as possible to allow the emergency management facilities an early planning tool. The DWD delivers information directly to facilities like fire fighters, police or civil protection and even to special users like the energy industry or water management services (see link DWD Special Users). The public weather forecast and the storm and thunderstorm warnings of the DWD are provided through the media or Internet (see link). Since 2005 the DWD has been running a steadily improving “Heat Warning System” (HWS), which is based on the “Health Related Assessment of the Thermal Environment” (HeRATE). A “Forest Fire Danger Index” and an “Experimental Grassland Fire Danger Index” has also been developed by the DWD, which is accessible on the Internet (see link) and provides the weather-based prognosis of fire danger for the next three days. During periods of high fire danger, this index is published/broadcasted systematically by the media. Weather warnings are also available on different German websites or even distributed by text message (see attached links). The “German Emergency Planning Information System” (deNIS IIplus) and the “Joint Hazard Estimation of the Federal States (Laender) and the Federal Government” have also implemented first approaches to early warnings.

Most Federal States (Laender) have their own flood management centres that deliver local information and are integrated into local emergency services (see for example the centre in Cologne in the link below that even conducts risk assessment for private properties). On the one hand, these are organized through their relevant ministries in the “Working Group on Water Issues” (LAWA: see link) for all water-related concerns, while the different international river commissions (see ICPR, ICPO, ICPDR and ICPER in the following Core Indicator), on the other hand, simultaneously manage such issues. The flood management centres have different early warning systems in place because there is no central regulation, rather outreach at the community level.

Baden-Wuerttemberg, Bavaria, Hesse, North Rhine-Westphalia, Rhineland-Palatinate and Saxony each has its own seismological service and earthquake early warning system, also organized in the “Federal Institute for Geosciences and Natural Resources Seismic Data Analysis Centre” (SDAC: see link). For single communities in the alpine area, avalanche warning systems exist.

The GFZ Helmholtz Centre in Potsdam (see link) is engaged in different early warning systems worldwide, including the “German Indonesian Tsunami Early Warning System” (GI-TEWS) mentioned above or the earthquake information service GEOFON (see link). The GEOFON Global Seismic Monitor works as an ongoing information platform and “Early Warning” system, which informs stakeholders in real-time after an earthquake.

The “Federal Foreign Office” (AA) and the “Federal Ministry for Economic Cooperation and Development” (BMZ: see links), support the development and extension of early warning systems worldwide through the GTZ, InWEnt or local partner organizations. These people-centred early warnings aim to accumulate data through communities, analyse them centrally and disseminate the warnings back through the local authorities. In addition, the AA supports the Platform for the Promotion of Early Warning, PPEW of the UN/ISDR, which resides in Bonn. In 2006 the German Government hosted the “Third International Early Warning Conference” (EWC III) in Bonn, which resulted in a checklist of actions and a catalogue of early warning projects (see link for conclusions from the conference).

The GTZ and the Munich Re Foundation, for example, have supported local early warning systems in a Public Private Partnership (PPP) for the Buzi river in Mozambique since 2005. This people-centred early warning system integrates the communities in data collection and dissemination of warnings. The GTZ is also engaged in the GI-TEWS by implementing effective communication structures, public campaigns and consulting. Further German actors in this project are InWEnt, the “Federal Institute for Geosciences and Natural Resources” (BGR) and the United Nations University (UNU-EHS) (see links).

Within the International Climate Initiative (IKI) a one year project titled “Disaster Prevention and Adaptation to Climate Change in Remote Himalayan Village” started at the beginning of 2009. The project seeks to develop adaptation strategies and rise the awareness of upcoming lack of water. An early warning system for glacier floods and water deficiency is planned.

Setting up local early warning systems has become particularly important during recent years inside GRC DRR programming. The GRC takes great care to ensure that the communication chain effectively reaches the community level and that no link is missing.

#### **Context & Constraints:**

The DWD aims to take a Single Voice Approach because it usually has, as a federal state authority, the sole duty to warn the public, although not by law. The “Forest Fire Danger Index” and the “Experimental Grassland Fire Danger Index” do not yet offer forecasts beyond one day. The DWD should receive the necessary financial support to develop medium-term (1 to 2 weeks) fire-danger forecast capabilities. The precipitation prediction capacity of the DWD is on the raise to be able to provide improved high water predictions and secure early warnings. Moreover, a large-scale or Federal State coverage area must be further developed to guarantee national early warning capabilities.

The DWD plans to improve early warnings particularly by including the prediction tools of other nations and new statistical procedures (ensemble calculations), but altogether data access across national boundaries is complicated, time consuming and at times impossible, as individual data owners must be addressed in each country. Therefore, new international agreements (but also between the Federal States (Laender)) need to be reached, based on the aforementioned examples of the GFZ or the "Federal Office of Civil Protection and Disaster Assistance" (BBK).

Related links:

EWC III [http://www.ewc3.org/upload/downloads/Early\\_warning\\_complete2.pdf](http://www.ewc3.org/upload/downloads/Early_warning_complete2.pdf)

UNU-EHS <http://www.ehs.unu.edu/>

BGR [http://www.bgr.bund.de/cln\\_092/nn\\_322882/EN/Home/homepage\\_\\_node.html?\\_\\_nnn=true](http://www.bgr.bund.de/cln_092/nn_322882/EN/Home/homepage__node.html?__nnn=true)

InWEnt <http://www.inwent.org/index.en.shtml>

PPEW <http://www.unisdr.org/ppew/ppew-index.htm>

DWD Weather Warnings [http://www.dwd.de/bvbw/appmanager/bvbw/dwdwwwDesktop?\\_nfpb=true&\\_pageLabel=dwdwww\\_wetter\\_warnungen&\\_nfls=false](http://www.dwd.de/bvbw/appmanager/bvbw/dwdwwwDesktop?_nfpb=true&_pageLabel=dwdwww_wetter_warnungen&_nfls=false)

GTZ - Tsunami <http://www.gtz.de/de/themen/uebergreifende-themen/krisenpraevention/21020.htm>

Munich Re Foundation <http://www.munichre-foundation.org/StiftungsWebsite/>

GITEWS <http://www.gitews.de/>  
DWD - Warnings <http://www.wettergefahren.de/>  
Waldbrandgefahrenindex DWD <http://www.agrowetter.de/Agrarwetter/waldix.htm>  
BMZ <http://www.bmz.de/en/index.html>  
Auswaertiges Amt <http://www.auswaertiges-amt.de/diplo/en/Startseite.html>  
Earthquake Information System (GEOFON) [http://geofon.gfz-potsdam.de/geofon/new/eq\\_inf.html](http://geofon.gfz-potsdam.de/geofon/new/eq_inf.html)  
SDAC <http://www.seismologie.bgr.de/index.htm>  
GFZ Potsdam <http://www.gfz-potsdam.de/portal/>  
Meteomedia Unwetterzentrale <http://www.unwetterzentrale.de/uwz/index.html>  
Unwetterzentrale.de [http://www.ndparking.com/serve.php?lg=de&dn=unwetterzentrale.de&ps=ba25497eb01229a1501d44ed1d2b9fe7&tk=rrOUUFcm4-UKEwj\\_hM6GmdaUAhUIEbMKHYyW20QBhgAIAAwI\\_CgAzgVUIvwoANQ5NrECVCBqNAPUKmt0A9Q8I6uEFDwyaMbUMnhyCA&#8804;=2008072310000091609&aq=unwetterwarnung](http://www.ndparking.com/serve.php?lg=de&dn=unwetterzentrale.de&ps=ba25497eb01229a1501d44ed1d2b9fe7&tk=rrOUUFcm4-UKEwj_hM6GmdaUAhUIEbMKHYyW20QBhgAIAAwI_CgAzgVUIvwoANQ5NrECVCBqNAPUKmt0A9Q8I6uEFDwyaMbUMnhyCA&#8804;=2008072310000091609&aq=unwetterwarnung)  
DWD Special Users [http://www.dwd.de/bvbw/appmanager/bvbw/dwdwwwDesktop?\\_nfpb=true&\\_pageLabel=dwdwww\\_spezielle\\_nutzer&\\_nfls=false](http://www.dwd.de/bvbw/appmanager/bvbw/dwdwwwDesktop?_nfpb=true&_pageLabel=dwdwww_spezielle_nutzer&_nfls=false)  
Bund/Laender-Arbeitsgemeinschaft Wasser (LAWA) <http://www.lawa.de/>  
Hochwasserschutzzentrale Koeln <http://www.steb-koeln.de/hochwasser.html>

## Priority 2: Core indicator 4

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

### Level of Progress achieved:

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### Does your country participate in regional or sub-regional DRR programmes or projects?

Yes

### Means of Verification:

\* Yes: Programmes and projects addressing trans-boundary issues

> TIMIS Flood (2008) <http://www.timisflood.net/de/index.php>

\* Yes: Regional and sub-regional strategies and frameworks

\* Yes: Regional or sub-regional monitoring and reporting mechanisms

\* Yes: Action plans addressing trans-boundary issues

> Action Plan on Floods (1998)

<http://www.iksr.org/index.php?id=123&L=3&cHash=455fdab52ce6eafbf6f72632159564bf>

### Description:

In the case of the "Federal Agency of Technical Relief" (THW: see link) it is well integrated into a domestic and international network of those making requests and those partners offering cooperation. Networks are continuously broadened, further developed, and expanded on all levels, from local to international. In terms of efficient cooperation, several cooperation agreements and Memoranda of Understandings were concluded between THW and various partners.

One of the most important transboundary collaborations includes the international river commissions: Prevalent German examples include the "International Commission for the Protection of the Rhine" (ICPR:

see the links below), the “IC for the Protection of the Danube (Donau) River” (ICPDR), the “ICP of the Elbe River” (ICPER), the “ICP of the Odra River” (ICPO) and the “Internationale Kommissionen zum Schutz der Mosel und der Saar” (IKSMS), which all carry out flood risk assessment appendages to ensure flood control and management in an cooperative approach. On the Rhine, for example, an action plan exists (see link) which contains all riparian states (see also the “European exchange circle on flood forecasting” (EXCIFF) and “TIMIS-Flood” links).

For storm and thunderstorm warnings the weather services use supra-regional information, but the warning systems of the different countries are not harmonized. The warning system “meteoalarm” contains EU-wide extreme weather warnings and the national meteorological services work together in “The Network of European Meteorological Services” (EUMETNET: see links).

The GFZ and other German research institutes and universities are partners in the “Seismic eArly warning For EuRope” (SAFER: see link). The current OECD program “Global Earthquake Model” (GEM: see link) aims to interlink the different projects and actors and provide a uniform, independent standard to calculate and communicate earthquake risk worldwide.

In the case of wildfire response, the authorities of the most wildfire-prone Federal State of Brandenburg and the neighbouring province of Poland have signed a bilateral mutual assistance agreement, while mutual visits and cooperative forest fire research have been conducted between Germany and Poland.

The “Federal Foreign Office” emphasises in its guidelines for DRR (see link) the future priority placed on development/advancement of regional networks.

The German development cooperation supports concrete regional measures within the flood management programme „Mekong River Commission“ (Laos, Thailand, Cambodia, Vietnam), in Central Asia (Armenia, Azerbaijan) and in the Caribbean (Haiti, Dominican Republic).

### **Context & Constraints:**

Data access across national boundaries is complicated, time consuming and partly impossible, as individual data owners must be addressed in each country. Although there is strong national coordination with respect to disaster response and protective systems, in the field of critical infrastructure the cooperation is less pronounced, as this industry is largely controlled by the private sector. In the case of wildfires, however, there is no common terminology, training, protocols or incident command systems in place to provide standardized and efficient cooperative wildfire response action. Relevant capacity building/training and protocols must be developed.

However, regional cooperation is developing, especially within the EU. Due to the floods of the Oder (1990) and Elbe (2002) rivers, regional flood management cooperation is increasing and has provided the systems with crucial improvements. As well as the already-mentioned weather forecast and warning systems, a further increase in international cooperation is already taking place, e.g., in “Global Monitoring for Environment and Security” (GMES: see link) or within the WMO.

“German Red Cross” (GRC) is only focusing on local risks assessments as a part of its Vulnerability and Capacity Assessments (VCA) inside the different target communities. Local knowledge of natural hazards and pre-established structures such as evacuation routes, safe refuges or functioning village committees are taken into account and incorporated into the programme design.

VCAs help the people on site and the GRC to identify key risks. In addition, VCAs provide information on existing capacities that can be used to eliminate or reduce these risks. And finally, the hazard maps produced in this context imply the identification of high-risk zones and safe spots in the respective area. At the same time GRC is supporting the different national headquarters of the national Red Cross to join this kind of national risk assessments and to support the national government in risk identification.

Related links:

GEM <http://sicarius.wr.usgs.gov/gem/>  
THW [http://www.thw.bund.de/cln\\_036/nn\\_244766/EN/content/home/home\\_\\_en\\_\\_node.html\\_\\_nnn=true](http://www.thw.bund.de/cln_036/nn_244766/EN/content/home/home__en__node.html__nnn=true)  
Guidelines DRR - Federal Foreign Office <http://www.auswaertiges-amt.de/diplo/de/Aussenpolitik/Themen/HumanitaereHilfe/downloads/katastrophenvorsorge-grundsaeetze-leitlinien.pdf>  
GMES <http://www.gmes.info/>  
EXCIFF <http://exciff.jrc.it/>  
TIMIS-Flood <http://www.timisflood.net/en/index.php>  
SAFER <http://www.saferproject.net/doc/partnership.htm>  
EUMETNET <http://www.eumetnet.eu.org/>  
Meteoalarm <http://www.meteoalarm.eu/default.asp?lang=DE>  
Action Plan on Flood Defence for the Rhine River  
[http://www.kvvm.hu/szakmai/budapestinitiative/docs/marc\\_braun.pdf](http://www.kvvm.hu/szakmai/budapestinitiative/docs/marc_braun.pdf)  
SETRIC <http://www.setric.org/>  
ARMONIA  
<http://www.armoniaproject.net/html4/index.php?module=ContentExpress&func=display&ceid=24&meid=-1>  
BBK Forschungsvorhaben 280 [http://www.bbk.bund.de/cln\\_027/nn\\_403144/sid\\_11C6499D26AB6BD0CD31690A6AB9B69C/DE/02\\_\\_Themen/07\\_\\_Forschung/02\\_\\_Forschungsvorhaben/02\\_\\_IldFV/01\\_\\_BeschreibungFV/Beschreibung\\_20Lang\\_20280.html\\_\\_nnn=true](http://www.bbk.bund.de/cln_027/nn_403144/sid_11C6499D26AB6BD0CD31690A6AB9B69C/DE/02__Themen/07__Forschung/02__Forschungsvorhaben/02__IldFV/01__BeschreibungFV/Beschreibung_20Lang_20280.html__nnn=true)  
IKSMS <http://213.139.159.34/servlet/is/391/?lang=1>  
ICPO <http://www.mkoo.pl/>  
ICEPR <http://www.ikse-mkol.org/index.php?id=1&L=2>  
ICPDR <http://www.icpdr.org/icpdr-pages/home.htm>  
ICPR <http://www.iksr.org/index.php?id=470>

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## Italy (in English)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

#### Level of Progress achieved:

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

#### Is there a national multi-hazard risk assessment available to inform planning and development decisions?

Yes

#### Means of Verification:

- \* Yes: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* Yes: Gender disaggregated vulnerability and capacity assessments
- \* Yes: Agreed national standards for multi hazard risk assessments

**Description:**

Risk assessments concerning all main hazards are performed at local, regional and National level. These activities are carried out according to risk maps updated periodically in order to maintain a thorough knowledge of the distribution, over the whole National territory, of hazards, exposition and vulnerability. The responsibility to ensure that risk maps and risk assessments are up-to-date relies primarily upon the lower level of the system as local and regional authorities have a better knowledge of the territory.

**Context & Constraints:**

The main challenge in this sector is the growing magnitude of disasters occurring countrywide. Climate change is modifying the relation between the communities and their territories. This problem is exacerbated by the presence of human settlements and activities even in remote and/or dangerous areas. In some areas of the Country, small communities often do not have the necessary skills and resources to carry out effective risk assessments. This may cause poor development planning, reflecting a lack of knowledge about risk distribution.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

**Description:**

Comprehensive risk assessments are carried out at the different levels of the system under the responsibility of municipalities, provinces and regions, with a strong support given by the National level. The National Civil Protection Department has the responsibility to provide the whole system with guidelines and directives concerning how risk assessments have to be conducted, made available and circulated from one level to the others. These measures are provided through National forecasting and Prevention Programmes. The Regional Administrations are then responsible for translating the National guidelines into Regional Programmes in which roles and responsibilities of lower-level administrations are defined together with information exchange procedures. Provincial and municipal risk assessments are strongly related, since risks very often fall across the boundaries of two or more municipalities. In these cases, the coordination role played by the Provinces, or by inter-municipal cooperation bodies, is critical.

**Context & Constraints:**

Experience has shown that, even if standardization and notification procedures have been set, there are still gaps in timing and quality of risk assessments made by small villages, due to lack of resources and difficulties in recruiting skilled personnel. A number of initiatives have been undertaken in order to face this problem, with some success.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

5 - Comprehensive achievement with sustained commitment and capacities at all levels

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

\* Yes: Early warnings acted on effectively

\* Yes: Local level preparedness

\* Yes: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

**Description:**

Early warning is a National and regional commitment. It is ensured through an extensive use of technologies owned by different administration and agencies. A number of remote networks and sensors systems covering all risks affecting the Country are in place. Early Warning has been improved through the creation of a "National warning system" composed by a Central Functional Centre and Regional Functional Centres, introduced in 2004. Each centre has the responsibility to receive, assemble and integrate all relevant data for foreseeable risks, to consult with other centres and to make information circulate h24 among decision-makers of all tiers of the National Civil Protection System.

**Context & Constraints:**

The main challenges concerning the future of early warning refer to systems integration. The National warning system provides an extensive coverage of risks, but a number of independent systems and networks exist as well. While almost all systems owned by National-level institutions and agencies are already linked to the network, there still remain resources managed at the regional and sub-regional level by a wide number of actors (including regional agencies, research networks and private companies) that need to be integrated, or to be fully integrated, into the National warning system.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

\* Yes: Programmes and projects addressing trans-boundary issues

- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

**Description:**

Comprehensive risk assessments are carried out primarily under the responsibility and coordination of the regions, provinces and municipalities. Internal transboundary issues are taken into consideration according to the directives and guidelines issued by the National Civil Protection Department, which is responsible for keeping the whole picture up-to-date and for facilitating regional cooperation. By means of the reform performed through the Constitutional Law n. 3 of October 18th, 2001, the Italian Regions have acquired the power to sign international agreements concerning Civil Protection in compliance with the relevant National policies, so regions with international boundaries can set up cross-border agreements with foreign Civil Protection agencies. In the last years, several cooperation programmes have been set up to reduce transboundary risks.

**Context & Constraints:**

Regional cooperation can be further improved, particularly when international borders are concerned. Specialized agencies have been set up in order to deal with risks typically involving more than one region, such as the hydrological risk tied to rivers and to major basins. With regards to trans-national issues, some northern regions have already developed their own networks involving both national and foreign partners. In recent years, a stronger cooperation with the Mediterranean Countries has been established. This will help developing new forms of transnational cooperation involving southern regions.

**Norway** (in English)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

-- Nothing reported within this timeframe. --

**Means of Verification:**

- \* No: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

At national level every year the Norwegian Directorate for civil protection and emergency planning (DSB) is conducting and publicizing a national vulnerability and preparedness analysis. On local level 96% of the municipalities have conducted local risk and vulnerability analysis the latest four years.

Analyses and investigation studies are vital activities to gain an overview of which preventive measures should be given priority. The Protection of society-project (BAS) at the Norwegian Defence Research Establishment and DSB's annual National Vulnerability and Preparedness Report are such examples. The analyses are cross-sectoral and identify vulnerabilities in the society in general and in the different sectors.

Responsible authorities on national level make hazard risk assessment within their field of responsibility on national level, which are followed up by counties and municipalities in their cross-sectoral risk- and vulnerability assessments.

Norwegian authorities are at the moment working on developing a national risk assessment. The aim is to create a cross sector approach to risk assessments enabling national authorities to compare different types of hazards and risks. The methodology is inspired by the Dutch and British approach in which different types of events are measured according to their likelihood and consequences, and finally put into a matrix. A cross sector risk matrix will give Norwegian authorities a better understanding of national risks and vulnerabilities, and hence a better basis for prioritizing preparedness resources. The first national risk assessment will be published early 2011.

**Context & Constraints:**

-

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Are disaster losses systematically reported, monitored and analysed?**

-- Nothing reported within this timeframe. --

**Means of Verification:**

\* No: Disaster loss database

\* No: Reports generated and used in planning

**Description:**

There are several systems established to monitor, archive and disseminate data on key hazards. One example is the work on climate change adaptation, where a dedicated secretariat disseminates and coordinates across sectors and administrative levels.

Another concept for disseminating information to the citizens is the project on a new webportal which may be a "one-stop shop" for citizens for risk information. A preliminary version is up and running, a final version will be launched in 2011.

The Norwegian Water Resources and Energy Directorate (NVE) maps and monitors flooding and landslide

risks throughout the country. In case of an event, they issue warnings to the areas affected. There are also local systems for monitoring hazards and disseminating risks to the public. Examples are associated with landslide risks in Western Norway, and industrial risks in the Grenland area.

**Context & Constraints:**

-

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

**Description:**

It is a continuous process to assess capacity of the four elements of early warning (risk knowledge, monitoring and warning services, dissemination and communication, and response capabilities) to empower the communities threatened by hazards.

The National Risk and Vulnerability Analysis (NSBR) 2010 highlights the importance of early warning systems. There are many systems in place, both at national and local level, and there is a need to streamline and simplify warning systems.

**Context & Constraints:**

-

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

**Description:**

There is improved cooperation with the neighboring countries, for instance a separate Arctic agreement on disaster risk reduction. Relevant EU work is also improving. The ministers of the five Nordic countries signed an agreement in 2009 to strengthen Nordic cooperation in disaster preparedness. In 2010, Norway initiated a Nordic network for ISDR, the first meeting was held in Oslo in March. There have also been a number of cross-border exercises, such as Barents Resque (every second year) involving Russia, Finland, Sweden and Norway and the joint UN/EU exercise SweNorEx held at the border between Sweden and Norway in 2009.

On the regional level the counties make cross-sectorial risk- and vulnerability assessments. This is followed up in the counties cooperation with other regional authorities and municipalities.

**Context & Constraints:**

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**Poland** (in English)**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

No

**Means of Verification:**

- \* No: Multi-hazard risk assessment
- \* unknown % of schools and hospitals assessed
- \* unknown schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

The effectiveness of the Polish protection system can be recognized by forecasting accuracy of time and location as well as intensity of unfavorable or severe natural phenomena with such lead time, that prevention activities eliminating or reducing threat to life and property could be possible. Advanced protection system, which is modern both in methodology and equipment, takes also into consideration the subjects resulting from international co-operation programmes within the structures and programmes of the World Meteorological Organization at regional and global levels.

Additional improvements on the administration level need to be focused on utilization of already existing data and providing risk assessment mapping to the public.

**Context & Constraints:**

To create multi-hazards risk assessment the Informative System in front of Extreme Hazards will be developed in Poland till 2013. Results of that project conducted by Institute of Meteorology and Water Management allow in future to create the base for multi-hazard risk assessment for local planners.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

\* No: Disaster loss database

\* No: Reports generated and used in planning

**Description:**

Disaster loss data base is not dedicate to the private possessions but only to losses in infrastructure within government and self governments.

**Context & Constraints:**

Improvements are required in the part of the losses dedicated to the private possessions.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

5 - Comprehensive achievement with sustained commitment and capacities at all levels

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

**Description:**

Universality of the hydrometeorological protection system in Poland is proved by meeting information needs, which may appear in government and society, as individual, collective, governmental and municipal ones. The Polish hydrological and meteorological protection system deals in a comprehensive, effective and universal way with extreme natural events, which pose the most severe threat to life and inhabitants' property.

Comprehensive means that the system covers integrated essential physical processes in the atmosphere and hydrosphere, which are linked by various cause-effect relationship. Each of them separately or some joined together may affect society and economy.

System is comprehensive, what can be seen in integrated forecasting methodology, in integrated observation-measurement system as well as in integrated and efficient technology of transmitting, processing and collecting data and in many other parts of the protection system. Data are derived from our own observation-measurement system, from international data exchange system, from ground, satellite and radar teledetection systems (domestic and international ones) and even from the outputs of meteorological and hydrological models, which verify and complete each other.

**Context & Constraints:**

Addition activities are required to implement widely local warning systems which are important in specific situations when time for decision making is very short. Preparedness to DRR at local community level should be improved

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

5 - Comprehensive achievement with sustained commitment and capacities at all levels

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

**Description:**

Continuous and increasing international co-operation is conducted. It involves:

- legal, organizational, technical aspects, transboundary and regional research co-operation, and
- international agreements which are realized under the auspices of the United Nations.

Common activities which aim to prevent every dangerous situation include, among others:

- identification of institutions, structures and people responsible for rescue services in the neighbouring countries;
- identification and exchange of information about threat in border-areas;
- identification and exchange of information concerning relief and recovery measures of the effects of extreme hazards;
- preparation of effective and simple procedures, which can enable to ask assistance and precisely define the extent of a catastrophe (event);
- organization of communication;
- agreement of conditions enabling to quickly cross a border by services from countries which can help and regulation of cases concerning possible transportation (in the UE countries this case is simplified).

The co-operation is carried out under the auspices of The Ministry of the Interior and The Ministry of Foreign Affairs involving main participation of the National Fire Department and The Institute of Meteorology and Water Management. The co-operation is realized both in the form of bilateral and multilateral agreements (between neighbouring countries) as well as within such organizations as:

- United Nations Economic Commission for Europe,
- Council for the Baltic Sea States,
- Central European Initiative,
- Office for the Coordination of Humanitarian Affairs (which includes INSARAG –International Search and Rescue Advisory Group).

The international co-operation is also carried out within the Central European Disaster Prevention Forum Platform (CEUDIP), European Forum for Disaster Risk Reduction and European Network of National Platforms (ENNP). Within ENNP activities two small projects regarding DRR were submitted to the EC.

**Context & Constraints:**

Not sufficient in the past cooperation on the community level is now facilitate by EU funds.

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## Romania (in English)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

-- Nothing reported within this timeframe. --

**Means of Verification:**

\* No: Multi-hazard risk assessment

- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

The government has funded pilot projects for creating earthquake and landslide hazard maps for most regions and some major cities, programmed to be completed in 2010. Every four years, town halls develop emergency situations plans in case of floods, dangerous hydrological and meteorological events, dam's accidents and accidental pollution. These plans contain all the prevention and response measures and the information flow in case of an emergency situation and are available to the general public on the Prefecture's webpage and in any town hall.

**Context & Constraints:**

Comprehensive local assessment requires a great financial and logistic effort, as well as human resources which are hard to accomplish due to present financial constraints. Moreover, the required analyses for hazard mapping are performed within European Commission funded projects and thus, there are further constraints associated with the possibility to engage in such projects

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Are disaster losses systematically reported, monitored and analysed?**

-- Nothing reported within this timeframe. --

**Means of Verification:**

- \* No: Disaster loss database
- \* No: Reports generated and used in planning

**Description:**

Several monitoring and warning systems are in place, such as: National Seismic Network, National Integrated Meteorological System and Integrated Water Management System (WATMAN). These systems provide early warning of major events to the authorities and to the population.

In order to improve some of these systems, in 2006 a feasibility study has been conducted in order to develop a system which ensures field data collection, validation and processing, information dissemination and decision-making process regarding earthquake events. Moreover, the Integrated Information and Decision System for Water Disasters (DESWAT) is being implemented

**Context & Constraints:**

Some projects require further funding and more human resources in order to be completed

### **Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

#### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

#### **Do risk prone communities receive timely and understandable warnings of impending hazard events?**

-- Nothing reported within this timeframe. --

#### **Means of Verification:**

- \* No: Early warnings acted on effectively
- \* No: Local level preparedness
- \* No: Communication systems and protocols
- \* No: Active involvement of media in early warning dissemination

#### **Description:**

Several monitoring and warning systems are put in place such as: National Seismic Network, National Integrated Meteorological System and Integrated Water Management System (WATMAN). These systems provide early warning of major events to the authorities and to the population.

#### **Context & Constraints:**

Improving existing monitoring systems require further funding and more human resources.

### **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

#### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

#### **Does your country participate in regional or sub-regional DRR programmes or projects?**

-- Nothing reported within this timeframe. --

#### **Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues
- \* No: Regional and sub-regional strategies and frameworks
- \* No: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

**Description:**

Romania and its neighbors are involved in several cross-border cooperation programs intended for disaster risk monitoring. Some programs are already implemented while others require European Commission's approval or are being analyzed.

**Context & Constraints:**

The constraints concerning these cooperation programs are related to the required financial and logistic efforts and the possibility to engage in such programs.

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**Sweden** (in English)**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

**Means of Verification:**

- \* Yes: Multi-hazard risk assessment
- \* N/A % of schools and hospitals assessed
- \* N/A schools not safe from disasters (specify absolute number)
- \* Yes: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

Schools and hospitals are not assessed individually and, therefore, there is no procent provided under "means of verification" above.

The County Administrative Boards have worked systematically to help municipalities identify risks and vulnerability. Significant progress has been achieved already, although most counties have not yet reached the desired stage in their risk and vulnerability work. Nevertheless, there is a large consensus and a strong commitment within the health care sector regarding the issue. Even experience from past natural disasters are evaluated and taken into account.

The County Administrative Boards include water authorities that have a database that can be used for national and local risk assessments. This data includes physical, chemical, and biological data from observations, inventories of contaminated land as well as inventories of dams, environmentally hazardous activities conducted and regulated by permit, and documentation of experience from crisis events.

The County Administrative Boards perform regional risk and vulnerability analyses that can be used as a basis for their own and other players' prevention, mitigation and emergency preparedness measures. On the local level the risk and vulnerability analysis are required in accordance with law.

Inventory and mapping of various natural disasters, such as landslide, slope failure, flooding is accomplished. Inventories of beach erosion along coasts and rivers are made including a large project to assess stability in the Göta River which runs through Gothenburg. The Geological Survey of Sweden (SGU) maintains a database containing landslides, ravines, steep sandy river banks and active erosion. In addition the Swedish Geotechnical Institute (SGI and MSB have databases with similar information). SGU coordinates a national groundwater monitoring network.

A national government investigation resulted in a comprehensive report called "Sweden facing climate change – threats and opportunities". This and previous information campaigns, have contributed to an increased interest in climate change adaptation at the local level. The Swedish national platform coordinates the tasks related to climate adaptation that have been assigned to member agencies by the government. Planning is in progress at the national level for assessing and maintaining good water supplies in a changing climate. These planning efforts are support adaptation at local and regional level.

Sweden has several systems for informing and alerting the public. The two most important ones are the IPA system (Important Public Announcement), and in regions with a nuclear power plant, a system for nuclear alerts. MSB has developed and supports a digital radio communications system used by public policy, public security any public health entities. The MSB is also the focal point for co-ordinating Swedish national information security which includes the preparedness of media contributions to societal safety.

There is a legal requirement for various systematic security measures such as fire safety, medical care, and preparedness.

Vulnerable areas and systems have been identified where specific attention is needed. These include but are not limited to the following: MSB that is coordinating interagency work to develop a national strategy for protection of critical infrastructure. The Swedish Government will strengthen preparedness for future severe winter storms by examining ice storm risk scenarios. An analysis and assessment is in progress to determine the impacts of a flood in Sweden's third largest lake, Mälaren.

#### **Context & Constraints:**

There is an absence of responsibility and resources for inventorying erosion along coasts and rivers as is done for landslide, slope failure and flood prone areas.

#### **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

#### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

#### **Are disaster losses systematically reported, monitored and analysed?**

Yes

#### **Means of Verification:**

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

**Description:**

All municipalities report annually to the MSB regarding emergencies that have occurred. Statistics are compiled for each municipality in the country and comparisons are made in the form of graphs and tables. The compilation of this data comprises the national emergency services statistics which is published every year. There is also a database where information about injuries is registered. The Civil Protection Act requires that investigations are conducted after emergencies. As a result of these investigations there is data about the types and causes of accidents and emergencies as well as how they can be handled. In addition the MSB has developed and updates a national natural hazards database which can be accessed from the UNISDR's Prevention Web site. The Swedish Geotechnical Institute maintains a landslide database.

The Swedish Forest Agency has decided on a national standard procedure for preparedness for events that can cause extensive damage to forests. This agency has also developed a standard procedure for an indicator system designed to capture trends in biological injury in the forest. The MSB has developed a national information system called, Fire risk - Forest and Land, for municipal fire brigades and County Administrative Boards. This is used to assess the risk of vegetation fires. The system is available on the Internet. It contains, for example, information about how the weather can affect the risk level for vegetation fires. The system provides basic data for prevention work and can also assist in decision-making during emergency response operations.

The Swedish Meteorological and Hydrological Institute collects observational data and climate model data nationally and is responsible for quality control. The Mapping, Cadastral and Land Registration Authority of Sweden, has established a national database of satellite data called Saccess. It provides data for non-commercial use at no cost and contains historical data sets from the 1970s, 1980s, and the millennium year 2005 as well as annual comprehensive national data sets from 2007. This government agency has also built up a new national elevation database with output from laser scanning, starting in 2009. The agency also participates in European Union projects for risk and crisis management, most recently in the SAFER project, starting in 2009.

**Context & Constraints:**

Limited resources but not fully adequate are available for monitoring systems, archives, and dissemination of data.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

\* Yes: Early warnings acted on effectively

\* Yes: Local level preparedness

\* Yes: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

**Description:**

In the area of local-level preparedness, there is ongoing education, exercises and information provided for the regional and local level, contributing to enhanced crisis management and prevention capabilities.

At the national level the ability to detect unusual pathogens in food and drinking water linked to climate change (e.g. floods) and antagonistic threats is under development. There is also a systematic effort to identify and evaluate risks, development of early warning systems, etc. to new hazards that can affect drinking water and foods. Conferences on the local, county and national level for early warning are carried out in light of the increased risk of natural disasters. Several large drinking water producers have warning systems upstream from water supplies, and can send alerts when there are changes in water quality

In the field of early warning work is in progress at the national level for building the capacity to detect unusual pathogens in drinking water. Also there is a systematic effort to identify and evaluate risks and develop early warning systems for new hazards that can affect drinking water and foods. There are manuals and guides produced including tools and techniques, for developing risk and vulnerability analysis, etc. The products from the National Food Administration, branch organisations, and universities have all developed different kind of tools and methodologies.

SMHI provides a regular service of early warnings of hazardous meteorological, hydrological and oceanographic events. The warnings are distributed to the general public through radio and web pages, and further communicated to all other organisations and parties that need the warnings.

MSB is responsible for assuring that the municipalities have a VMA system with alarms to alert the public in case of a major emergency. The media has requirements for alerting the public to what they need to do for emergency preparedness.

**Context & Constraints:**

It is a challenge to assure that the public reacts as they should when a catastrophe or crisis arises.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

\* Yes: Programmes and projects addressing trans-boundary issues

\* Yes: Regional and sub-regional strategies and frameworks

\* Yes: Regional or sub-regional monitoring and reporting mechanisms

\* Yes: Action plans addressing trans-boundary issues

**Description:**

The County Administrative Boards are working for regional cooperation on risk reduction through regular meetings between the different counties, as well as through sector-specific cooperation, for example within water quality and prevention of floods.

The Haga agreement written in 2009 increases cross-border cooperation within the emergency management field, and this will also affect cooperation in the field of drinking water supplies. Today there is some interest in collaboration in emergency management and drinking water in Norway, Denmark and Finland. (SLV)

In 2010 the Mapping, Cadastral and Land Registration Authority of Sweden together with a Nordic network for geodata for risk and crisis management initiated a process aimed at facilitating access to geodata across borders in the Nordic countries. There are cross-border projects with Finland and Norway involving the use of geo-information for natural disasters.

The County Administrative Boards collaborates with municipalities in innovative ways such as the multi-sector river groups to assure effective river basin water management.

Municipalities and County Administrative Boards are the primary target groups for the Swedish Energy Agency's information about risks to energy security and advice on how interruptions can be handled. The Swedish Energy Agency published a paper on thermal breaks, which have been distributed widely. The annual risk and vulnerability assessments analyse cross-border problems in energy supply. The import of oil products, natural gas and bio-energy is important for the energy system and this network is physically connected across borders.

SGU is participating in a European Union pilot project called Marsumo. It supports the policy-making process of the EU to create a common information sharing environment for the EU maritime domain.

There is a Nordic rescue agreement, international Barents Rescue drills, and a Baltic Sea Strategy (which has been agreed upon by all 10 countries with a border along the Baltic Sea).

**Context & Constraints:**

Not all sectors are involved in such trans-boundary cooperation as described above. Some sectors in Sweden are better and more active than others.

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## Switzerland (in English)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

**Means of Verification:**

- \* Yes: Multi-hazard risk assessment
- \* N/A % of schools and hospitals assessed
- \* N/A schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* Yes: Agreed national standards for multi hazard risk assessments

**Description:**

Cantons and municipalities are legally obliged to dispose of hazard maps considering floods, avalanches, rock falls and mass movements. As of April 2010, two third of the national territory is covered with hazard maps with avalanche maps having the highest percentage. Furthermore, comprehensive hazard index maps and a nationwide overview for potential floods are available, which help to determine cumulative risks and relevant damage potentials. Risk analyses for transport infrastructure are underway. Zonation of earthquake-prone areas is also available.

**Context & Constraints:**

Specialised companies carry out risk assessments according to national principles and standards. FOEN, the responsible authority at national level, claimed the elaboration of hazard maps for whole Switzerland until the end of 2011; however, major efforts still have to be made to achieve this goal. A further challenge is the application of hazard maps in land use planning.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

- \* Yes: Disaster loss database
- \* Yes: Reports generated and used in planning

**Description:**

Cantons are legally obliged to maintain event cadastres, i.e. records of past disasters. These databases, established by the Federal and Cantonal authorities, provide important information for the elaboration of hazard maps. Hazard and risk assessments are carried out according to systematic procedures, technical guidelines, tools and methods.

A Swiss flood and landslide damage database exists since 1972 with annual publications. Also insurance

companies record disaster losses. After major disasters, the Federal authorities usually carry out in-depth event analysis, which are available for the broad public.

**Context & Constraints:**

Some Cantons provide internet-based access to the hazard maps in their territory. At Federal level, a system, which allows a nation-wide overview on hazard maps, is being established.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* No: Early warnings acted on effectively
- \* No: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

**Description:**

Weather forecasting and warning systems for avalanches are well established and functional. There exists also a monitoring system of the seismic activity in Switzerland and neighbouring areas. There is also a flood warning system in place, however, some shortfalls are identified.

The Federal Council initiated in 2007 the project "Optimisation of Early Warning and Alerting" and mandated the responsible departments at national level with its implementation. Among others, a Joint Information Platform for Natural Hazards (GIN), which contains data and early warning products, has been established. Furthermore, a website with information on emergency behaviour directed to the broad public has been developed.

The National Emergency Operations Centre (NEOC) is the Federal centre of expertise for exceptional events. It can be contacted around the clock, 365 days of the year, and can be mobilised within hours. One of its tasks is the management of technological incidents and natural disasters. It serves also as contact for the Cantons on all civil protection issues.

**Context & Constraints:**

In May 2010, the Federal Council assigned financial resources and personnel to improve the meteorological network and the flood warning system (forecasts for all rivers in Switzerland and around the clock service). In addition, the responsible departments at Federal level developed an emergency task force.

In future, the Federal authorities will inform and warn the population about potential major disasters via radio and TV in coordinated manner ("single official voice").

Efforts are still to be made a local level where information and warnings have to be translated into concrete action to reduce losses.

## Priority 2: Core indicator 4

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

### Level of Progress achieved:

5 - Comprehensive achievement with sustained commitment and capacities at all levels

### Does your country participate in regional or sub-regional DRR programmes or projects?

Yes

### Means of Verification:

- \* No: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* No: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

### Description:

Regional and trans-boundary risks are especially taken into account at the regional scale, e.g. at river basins level basins, where the problems of upstream vs. downstream interests have to be addressed. For example, an early warning and alert chain exists along the Rhine river up to the Netherlands, coordinated by the International Commission for the Protection of the Rhine ([www.iksr.org](http://www.iksr.org)). Other regional and trans boundary cooperation involve other reaches of the Rhine (e.g. the upper Rhine, common to Austria, Liechtenstein and Switzerland) or the Alpine region.

There are treaties with all neighbouring countries on mutual assistance in emergencies.

### Context & Constraints:

Because of its cultural diversity and adverse environment, regional and trans boundary cooperation has always been important to Switzerland.

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## The former Yugoslav Rep of Macedonia (in English)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

### Level of Progress achieved:

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### Is there a national multi-hazard risk assessment available to inform planning and development decisions?

No

### Means of Verification:

- \* No: Multi-hazard risk assessment

\* 0 % of schools and hospitals assessed

\* 0 schools not safe from disasters (specify absolute number)

\* No: Gender disaggregated vulnerability and capacity assessments

\* No: Agreed national standards for multi hazard risk assessments

### **Description:**

The risk areas have been identified in the Spatial plan of the Republic, passed by the Parliament and made available. Within the crisis management system, the Assessment Group(AG) is responsible for the risk assessment. AG forwards its analysis, recommendations and conclusions to the Steering Committee, the Presidents of the Government, the Republic and Parliament.

Achievement has been made in fostering the risk assessment availability by setting networks that deal with specific risks and hazards. That is the case with the National Laboratory Network linking 173 labs nationwide that will address diseases and epidemics related hazards.

The implementation of the Geographic information system (GIS) network is underway that would enable spatial positioning and predicting possible hazard scenarios.

The Ministry of Environment and Physical Planning, in collaboration with Hydrometeorological Service(HMS) established a River Monitoring System and Air Monitoring System(RIMSYS). Also, periodical and ad-hoc inspectoral control of potential polluters and specific, risk-prone industrial capacities and installations, potential sources of industrial accidents. All relevant data is disseminated and shared among involved NPDRR stakeholders.

HMS through World Meteorological Organization and European Commission has completed the project for Regional Cooperation in SEE for meteorological, hydrological and climate data Management and information exchange to support DRR.

Especially active in terms of earthquake risks are the Institute of Earthquake Engineering and Engineering Seismology, IZIIS, and the Seismological Observatory. IZIIS' completed projects include:

- Physical and Psychological Management of Earthquake Related Emergencies in Schools in Macedonia; UNICEF (Completed 2004)
- Seismic Vulnerability Assessment of Key Health Facility in Macedonia - Pediatric clinic, Clinical center, Skopje; WHO (Completed 2006)

Among IZIIS's ongoing projects, is: Assessment of Seismic Site Amplification and Seismic Building Vulnerability in Republic of Macedonia, Croatia and Slovenia; NATO - Science for Peace Programme; Contract: SfP 980857

### **Context & Constraints:**

Despite achievements, there is still need for sustained commitment and capacities at all levels.

Although assessments for certain hazards are being produced (for instance: seismic activities, water pollution, heath waves etc.) there is still need for a multi-hazard risk assessment for all key sectors.

In order to produce reliable risk assessments, it is necessary to develop three types of methodologies: (1) Risk assessment and risk consequence assessment methodologies; (2) Risk mapping methodology; (3) Risk monitoring methodology. These methodologies are basis for developing the following assessments:

(1) Assessment of events implying risk and threat; (2) Communal resilience and vulnerability assessment; (3) Competent institutions' capacity assessment (both actual and required capacity); (4) Damage assessment, as well as additional vulnerability assessment; (5) Assessment of quality of overall response to occurred accidents and disasters.

The established thematic working groups are still not operational.

## **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### **Are disaster losses systematically reported, monitored and analysed?**

No

### **Means of Verification:**

\* No: Disaster loss database

\* No: Reports generated and used in planning

### **Description:**

Substantial achievement has been attained regarding the regular, systematic, appropriate processes for dissemination and archiving of data, as well as the monitoring of risks, with special focus on the seismic activities and floods in the country and the region.

NPDRR serves to improve the production of regular, timely, systematic dissemination of data and risks monitoring. A thematic working group on early warning is established.

Merging of the emergency call centers of the police, ambulance, firefighters and State Operation Center(SOC, located at CMC)into one Emergency Call Service 112 as part of the E-112 System. In this regard, the Early Warning and Alert System(part of the SOC, and, as such, is to be thoroughly reconstructed and modernized in the implementation process of the E-112 system.

Implementation of national GIS network is underway, and will enable spatial positioning and predicting possible hazard scenarios. Once completed, GIS will be available online.

Seismic monitoring and disaster forecasting is performed by IZIIS in the fields of: (1)Strong motion network; (2)Special Site Monitoring - 3D Strong Motion Array; (3)Large scale qualitative and quantitative vulnerability, damage and loss assessments for defining preparedness and emergency response needs.

Seismological Observatory systematically monitors seismic activity on the territory of the Republic and Balkan seismic active regions. For the purpose of prevention and protection as well as for scientific and educational purposes, instrumental and macroseismic data are collected, archived, analyzed and published in seismological bulletins and catalogues as part of international seismological data exchange. Observatory deals with seismic zonic, microseismic zonic, geology, engineering seismology, Urban plan, construction, rules for aseismic construction, ecology and software for many different problems in seismology; many local and international projects; permanent seismological researches.

HMS is the representative governmental institution for hydrometeorological monitoring, data management, weather forecasts and early warnings.

**Context & Constraints:**

The E-112 system, including GIS network, is still to be fully implemented and put into use. To further this end, it is important to authorize the National Coordinator for Implementation of NPDRR to monitor the activities of E-112 implementation.

The Law on electronic communications obliges IT and Telecom operators to make their network and infrastructure available to the state for the purpose of rapid dissemination of info in case of large accidents and disasters.

Furthermore, in order to correctly monitor hazards, it is essential to develop three sets of methodologies:

(1) risk assessment and risk consequence assessment methodologies;

(2) risk mapping methodology, based on theoretical knowledge and models, as well as on historic data of the specific event, should (with a high level of probability) confirm the:

- location (answering the question: WHERE?);
- circumstances leading to the phenomena implying risk (answering the question: HOW?);
- expected intensity (answering the question: HOW MUCH / TO WHAT EXTENT?).

(3) risk monitoring methodology (and practice) which can indicate a potential accident or disaster risk. In the context of an occurring accident or disaster, rapid assessment methodology is very important because it should provide:

- damage and threat rapid assessment;
- rapid needs assessment.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* No: Local level preparedness
- \* No: Communication systems and protocols
- \* No: Active involvement of media in early warning dissemination

**Description:**

A thematic working group on early warning is established within NPDRR with the purpose to enhance inter-institutional cooperation and coordination.

The EWS is an integral part of the system for public informing and alarming in case of emergencies(PIACE). Currently, EWS is composed of over 250 remote control sirens grouped into 30 independent PIACE's. A project for modernization and improvement of the EWS by replacing the old,

outdated equipment while utilizing modern information technologies is underway.

HMS has established integrated EWS for the Extreme Weather Events, based on radar, satellite, surface observation network and numerical weather forecasting. HMS established internal early warning procedure and practices using a standard scientifically approved methodology for determination of threshold of adverse weather phenomena in Macedonia for a normal climate period.

Seismic monitoring and disaster forecasting is performed by IZIS in the fields of: (1) Strong motion network; (2) Special Site Monitoring-3D Strong Motion Array; (3) Large scale qualitative and quantitative vulnerability, damage and loss assessments for defining preparedness and emergency response needs.

The Ministry of Environment and Physical Planning, in cooperation with HMS established a River Monitoring System and Air Monitoring System. Also, periodical and ad-hoc inspectoral control of potential polluters and specific, risk-prone industrial capacities and installations, potential sources of industrial accidents. All relevant data is disseminated and shared among involved NPDRR stakeholders.

The Ministry of Health educates the public on climate change risks related to health through its "Protecting health from climate change" web portal (<http://www.toplotnibranovi.mk/en/>); the Institute for Public Health is educating the public through its "EWS for Communicable Diseases Surveillance" (<http://www.alert.mk/en/index.asp>); CMC, in cooperation with the Macedonian Radio-Television (the public broadcasting service) produced a series of 36 TV debates covering DRR in 2009/2010.

#### **Context & Constraints:**

Currently, the PIACE has conventional and often outdated (from the 1970s and 1980s) equipment. Although the sirens are still functional, most of them don't have an independent power source. Instead of utilizing the modern technologies by using the wireless system for information dissemination, the old copper wire is still used.

Merging of the emergency call centers of the police, ambulance, firefighters and State Operation Center (SOC, located at CMC) into one Emergency Call Service 112 as part of the E-112 System. In this regard, the Early Warning and Alert System is to be thoroughly reconstructed and modernized in the implementation process of the E-112 system.

#### **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

#### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

#### **Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

#### **Means of Verification:**

\* Yes: Programmes and projects addressing trans-boundary issues

\* Yes: Regional and sub-regional strategies and frameworks

\* No: Regional or sub-regional monitoring and reporting mechanisms

\* No: Action plans addressing trans-boundary issues

### **Description:**

The establishment of the NPDRR gave new impetus to the sub-regional, regional and global involvement in DRR events, programs and projects. Following the establishment of the European Forum for DRR in London, 2009, the Republic of Macedonia was elected as Co-chair of the Forum with Sweden as Chair. In this capacity, the country headed the Advisory Group for Climate Change Adaptation & DRR. In October 2010, the Republic of Macedonia took over as Chair, with Croatia as Co-chair.

International cooperation with UN, EU, OSCE, NATO and foreign countries is endorsed. Especially important is the cooperation in the field of Environment and DRR with UNISDR, RENA, RCC, DPPI, CPM&MIC, within the project IPA Multi-beneficiary 2011-2013. Objective is to support alignment to environmental acquis and development of regional cooperation and capacity in the DRR area. IPA MB 2011-2013 has four strategic choices:

1. Enhancing the regional cooperation and capacity in addressing the DRR;
2. Developing the capacities for approximation, implementation and enforcement of the environmental acquis;
3. Enhancing the regional cooperation in managing hazardous materials during their life cycle (including CBRN);
4. Enhancing the regional cooperation in the area of climate change.

3-year Plan will be prepared by Program Manager, with direct support from RCC and the Republic of Macedonia ( Lead Beneficiary for the Strategic Choice no.4), in consultation with other EC representatives and donors, taking into consideration proposals made by IPA Beneficiaries.

Within NPDRR Council of State Secretaries, working groups on international cooperation and international funds access unit have been established.

Cooperation is encouraged with the Red Cross and Red Crescent Societies, other international humanitarian organizations, NGOs and other NPs.

There is Regional Cooperation in SEE for meteorological, hydrological and climate data management and information exchange to support DRR, including capacity building.

### **Context & Constraints:**

The so-called "name issue" is more than an obstacle for the international cooperation and membership of the Republic of Macedonia in respective organizations. Due to that, we are out of the possibilities for enhanced cooperation and stability.

Although there is regional cooperation regarding natural hazards, further cooperation is always needed.

# Oceania

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## Australia (in English)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

#### Level of Progress achieved:

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

#### Is there a national multi-hazard risk assessment available to inform planning and development decisions?

No

#### Means of Verification:

- \* No: Multi-hazard risk assessment
- \* - % of schools and hospitals assessed
- \* - schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

#### Description:

Risk assessments are conducted at a local, state and national level. Examples at the national level include:

- the extent of climate change risks to coastal ecosystems, infrastructure and settlements;
- the Climate Change Adaptation Program, to better understand and manage risks linked to the carbon pollution already in our atmosphere;
- a national risk assessment of the vulnerability of Australia's infrastructure to climate change (the first infrastructure sector to be assessed is transport);
- studies to determine the vulnerability of Australian communities and various building types to increased wind risk; and
- detailed regional climate change risks assessments, such as assessing the vulnerability of the south east region of the state of Queensland to future climate change impacts.

Risk assessments are supported and informed by information and sound methodology.

Examples include:

- the National Risk Assessment Framework: which delivers on a commitment by governments to develop and implement a five year national programme of systematic and rigorous disaster risk assessments; and
- online resources of risk information, including reports, hazard and exposure data, models and maps to

support best-practice risk assessments across Australia through a website ([www.ga.gov.au/hazards](http://www.ga.gov.au/hazards)).

Risk is also considered in other ways. One example is through a national, pre-season bushfire and seasonal briefing conducted by Australian Government agencies with State and Territory emergency management agency representatives. The aim of the briefing is to facilitate pre-season bushfire and seasonal hazard preparedness and planning dialogue between the Commonwealth and the States.

The resilience of facilities such as schools and hospitals to disasters is the responsibility of the State or Territory government in which the facility is located. This includes the siting, design and standard of construction of buildings, as well as their operation and ability to respond safely to emergencies either on the premises or close by. Building construction standards vary from State and Territory and take into account particular local conditions and potential vulnerabilities, such as fire or cyclone.

**Context & Constraints:**

As discussed throughout this report, risk assessments based on hazard data and vulnerability information are prepared at national and local levels.

They are prepared by a range of Australian Government agencies as well as agencies of other levels of governments, private sector companies and not-for-profit sector organisations. The purpose of their preparation varies, and there is likely to be some variation in the standard of the assessment, from organisation to organisation.

Australian Government agencies provide assistance through the provision of risk management data and information. Examples include:

- Geoscience Australia: supporting Australian participation as a public sponsor in the Global Earthquake Model: <http://www.globalquakemodel.org/>. The Model will provide an authoritative standard for calculating and communicating earthquake hazard and risk by developing much-needed global datasets, building open-source tools, and engaging scientists and engineers and users around the world; and collaborating with the insurance sector to develop improved natural hazard risk assessment methods and tools.
- the Bureau of Meteorology's Disaster Mitigation Policy Program, the aims of which include:
  - to facilitate greater collaboration between the Bureau's Climate, Hydrological, Weather and Oceanographic Services programs with regard to the Bureau Of Meteorology's disaster mitigation activities;
  - to ensure ongoing and effective interaction with other Commonwealth and State agencies with which the Bureau may have a joint role in the provision of Disaster Mitigation services;
  - to ensure warning services match and support community and agency action plans;
  - to engage in community and agency awareness programs;
  - to continue to investigate the implementation of new services in marine weather, air quality, human health and comfort, and enhanced community safety through a focus on natural disaster mitigation;
  - to ensure the relevance and visibility of the Bureau's disaster mitigation related services to the community; and
  - to support international disaster mitigation activities - in particular those initiated by the World Meteorological Organisation and those supported as part of the International Strategy for Disaster

Reduction.

## **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### **Are disaster losses systematically reported, monitored and analysed?**

Yes

### **Means of Verification:**

\* Yes: Disaster loss database

\* Yes: Reports generated and used in planning

### **Description:**

A number of Australian Government agencies monitor and analyse disasters and resultant losses and have developed systems and databases to facilitate this. These include:

- Geoscience Australia monitors earthquakes in Australia and the region and provides alerts to Australian Government agencies; its Sentinel 'hotspots' website provides information on fires for emergency and fire management agencies and the public.
- the Australian Tsunami Warning Centre operates 24 hours a day, 7 days a week, to detect and verify tsunami threats to Australia; and

Other systems in operation or under development, include:

- the development of open source natural hazard risk models and information to make available to stakeholders (government, research agencies and the public), in support of disaster prevention, mitigation, preparedness and vulnerability reduction;
- an open source hydrodynamic modelling tool that has underpinned tsunami hazard assessments in Australia;
- an open source earthquake risk model that will underpin the release of the next version of the Australian earthquake hazard map, as well as disaster risk reduction activities in Indonesia;
- an open source tropical cyclone risk model that underpins the National Wind Risk Assessment and disaster risk reduction activities in the Philippines;
- sharing natural hazard risk information and fundamental data, examples include: the Australian Flood Studies Database; providing online access to aggregated data from the National Exposure Information System; and an updated version of the Australian earthquake hazard map;
- a tsunami impact modelling workshop for Australian and State government emergency management agencies;

- workshops with Indonesian agencies to develop the next Indonesian national earthquake hazard map;
- workshops with technical agencies in the Philippines to investigate flood and tsunami, tropical cyclone, severe wind hazard and impact; and
- tsunami impact assessments in the Pacific.

**Context & Constraints:**

At the Australian Government level, there is no one, central disaster-loss database.

The reporting, monitoring and analysis of disaster losses is primarily the responsibility of the government of the State or Territory in which the disaster occurs. It is understood that various systems are in place to achieve this, across a number of agencies, and that such analysis informs the planning processes in those jurisdictions.

While there are some hazards that are common across jurisdictions, such as those arising from climate change, many are not. The impacts of the hazards, and therefore the priority that communities and governments may give to responding to them, also varies between jurisdictions.

Organisations and agencies in the disaster resilience arena, and related arenas, are increasing efforts to collaborate to identify common areas of concern and where combined resources may be efficiently utilised.

The analysis of disasters and resultant losses is also undertaken by non-government bodies, such as insurance industry professional bodies and insurance companies.

The Australian Government Crisis Coordination Centre connects all relevant Australian Government and jurisdictional agencies to centralise an Australian Government response to domestic crises and the domestic implications of an international crisis, in order to develop a single, timely and consistent picture or understanding of a crisis, its implications and the national capacity to respond. In the event of an international crisis the Centre will also contribute to the Department of Foreign Affairs and Trade’s Interdepartmental Emergency Task Force.

A number of Australian Government agencies also operate centres or facilities to assist with the monitoring and response to hazards across the all hazard spectrum. Details of a number of these are included in this report.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

5 - Comprehensive achievement with sustained commitment and capacities at all levels

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

\* No: Early warnings acted on effectively

\* Yes: Local level preparedness

\* Yes: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

**Description:**

Australian governments have, and continue to develop and introduce, a range of technological solutions to detect hazards and to warn affected persons of them.

Examples include:

- the development in 2009 of a national telephone-based emergency warning capability which sends warnings to fixed line telephones and mobile telephones based on the customer's registered service address.

This system ('Emergency Alert') funded by the Australian Government but owned and operated by the States and Territories, became operational on 1 December 2009 and, as of 25 March 2011, has been used 280 times and issued in excess of 6.54 million messages. The system has been used in a number of States and Territories for flood, tsunami, bushfire, chemical incident and missing person emergencies (see [www.emergencyalert.gov.au](http://www.emergencyalert.gov.au)).

Research into the feasibility of delivering warnings to mobile phones based on the handset's location at the time of an emergency has been undertaken. The Australian Government has committed funding to enable the States and Territories to establish this enhanced capability.

- The Australian Government's Australian Tsunami Warning System operates 24 hours per day, 7 days per week to detect and verify tsunami threats to Australia.

A further tsunami-related initiative is the tsunami education and awareness program that has been prepared in partnership with the volunteer organisation Surf Life Saving Australia and in conjunction with the States and Territories. The program has been developed to assist life savers and other beach management personnel deal with the general public in the event of a tsunami warning. The program includes an interactive online resource, education materials, and the development of procedures that incorporate all emergency service agencies and authorities in the event of a tsunami; and

- the Bureau of Meteorology and the Australian Broadcasting Commission (Australia's public broadcaster) continue to provide timely information on hazards, by radio, television and the Web.

**Context & Constraints:**

The development, adoption and implementation of early warning systems is subject to the respective roles of governments in the disaster management arena.

There are national level systems, as well as those specific to particular jurisdictions; for the detection of a hazard (such as for fire or tsunami); for the warning of affected persons about the hazard (such as the national telephone-based emergency warning system).

Contextual issues include:

- respecting the role and authority of jurisdictional governments and their agencies;

- maintaining awareness of advances in technology of potential value for disaster resilience purposes;
- collaborating across jurisdictions to develop and adopt a common technology platform;
- agreeing on guidelines and protocols to manage the application of technological developments. Examples include the National Telephony Guidelines, agreed by all governments in 2009, that provide a consistent telephony based warning methodology for emergency services in each jurisdiction; agreed protocols for the use of recorded voice announcements to provide valuable emergency information to callers to the emergency call service (Triple Zero - similar to the US 911 service); and the national emergency call centre surge capability, to assist State and Territory emergency information lines when their local capacity is overwhelmed; and
- involving all relevant levels of government as well as non-government organisations.

## **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### **Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

### **Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

### **Description:**

Australia works with bilateral, multilateral and regional partners to reduce the risk of, and respond to disasters and humanitarian emergencies in Africa, Asia and the Pacific. The Australian Government Department of Foreign Affairs and Trade has responsibility for leading the Australian Government's response to major international incidents.

Australia has in place a disaster risk reduction policy for its aid program, which provides strategic guidance and a coherent framework for its regional and international engagement in this area. Australia is:

- working through the East Asia Summit to progress closer regional cooperation;
- accepting the non-ASEAN lead country role for the "Disaster Risk, Vulnerability Identification, Reduction and Prevention in selected ASEAN Regional Forum (ARF) sub-regions" core area of the ARF Disaster Relief Work Plan;
- working with Indonesia to develop ARF Strategic Guidelines which provide ARF members with a common

understanding of regional civil-military cooperation and coordination procedures used in disaster relief;

- working with Singapore to develop a geospatial disaster relief mapping service to provide a single rapid access point for data on affected countries;
- participating in disaster relief exercises;
- drafting a Regional Engagement Action Plan, to help build capacity and resilience in our region; and
- funding travel of developing country partners to attend tsunami warning meetings and to upgrade equipment.

In addition, as co-chair with Indonesia of the APEC Emergency Preparedness Working Group (EPWG), Australia has pursued the EPWG's goal of building capacity in the region to mitigate, prepare for, respond to, and recover from emergencies and disasters.

Australia has worked with Indonesia to harmonise economic damage assessment techniques (2009), and with Thailand to strengthen public-private sector partnerships that build resilience to disasters (2010). Australia also worked closely with Vietnam in 2009 to support the annual meeting of heads of emergency management agencies from APEC's 21 economies, and their focus on integrating disaster management education into school curricula.

#### **Context & Constraints:**

Further examples of Australia's risk assessments taking account of regional / trans boundary risks include:

- the Australian Government Bureau of Meteorology has completed assessments in fourteen Pacific countries of their capacity to receive, communicate and respond effectively to tsunami warnings;
- in 2010 Australia and Indonesia launched the Australia Indonesia Facility for Disaster Reduction in Jakarta. The Facility aims to reduce the devastating impacts of natural disasters by strengthening national and local capacity in disaster management in Indonesia, and promoting a more disaster resilient region. The Australian Government is providing expert staff and US\$73 m over five years and the Indonesian Government will provide counterpart staff, services and support arrangements. Australia and Indonesia will manage the new facility.
- Australia provides ongoing support to the International Federation of Red Cross and Red Crescent Societies' International Disaster Response Laws, Rules and Principles programs in Asia and the Pacific which aim to address operational challenges in international disaster relief operations;
- Australia supports international and regional organisations including UN ISDR and the World Bank's Global Facility for Disaster Reduction and Recovery, to facilitate improved coordination, harmonisation and collaboration amongst disaster risk reduction stakeholders in partner countries; and
- Australia's bilateral support of national governments to implement disaster risk reduction activities and supports capacity development of NGOs to reduce disaster risk.

#### **Context:**

A study of Disaster Risk Management Needs in the Asia Pacific in 2007 found that there is a lack of coordination between regional stakeholders for a variety of reasons, including: lack of resourcing and capacity in some organisations limiting their ability to either lead or participate in regional fora; an unwillingness by some stakeholders to realign existing programs with those of other stakeholders; a lack of

knowledge about global and regional policy reforms; and, generally, insufficient understanding about the priorities and programs of other stakeholders.

This results in actual, or potential, duplication of effort in a range of areas, including: regional networks and meetings, knowledge management, capacity building and training, and risk assessment and hazard mapping.

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## Cook Islands (in English)

### Priority 2: Core indicator 1

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

#### Level of Progress achieved:

2 - Some progress, but without systematic policy and/ or institutional commitment

#### Is there a national multi-hazard risk assessment available to inform planning and development decisions?

No

#### Means of Verification:

- \* No: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

#### Description:

Under the leadership of the National Commission for Climate Change, with extensive Red Cross involvement, several vulnerability and capacity assessments have been conducted amongst communities, notably in Pukapuka and Mitiaro. The Cook Islands Red Cross has also offered some capacity building programmes on improving technical capacity to conduct disaster risk and vulnerability assessments.

MOIP is pursuing the development of a technical mainstreaming guideline linked to a Pacific Adaptation to Climate Change (PACC)-funded infrastructure project on Mangaia. This will serve as a model to enable the use of hazard/risk assessments as a prerequisite step in planning development initiatives across sectoral Ministries.

Through a project funded by the World Bank and the ADB, SOPAC working in collaboration with the New Zealand Institute of Geological and Nuclear Sciences (GNS) have undertaken a survey to help develop an exposure database for the Cook Islands. This is a regional initiative and other countries in the Pacific are also benefitting. The exposure database will provide data and information to help inform many facets of disaster risk management and also national development planning.

#### Context & Constraints:

The current situation is quite fragmented with different governmental agencies carrying out their own assessments. At the moment, no particular agency is tasked for the collation of risk assessment information nor to develop a central database that can be used to assess the social, economic and environmental impacts prior or after a disaster.

Little community vulnerability data exists for the Cook Islands, and there is a lack of information on the social, economic and environmental factors that increase vulnerability.

Significant gaps exist, both in historical disaster information and in projecting potential impacts of future hazards. Information is frequently lacking on the situation in the Outer Islands, as transport limitations lead to infrequent visits to these islands and consultations with their residents.

The Frontline Emergency Response Network (FERN) has the potential to strengthen management of DRM data and resolve data coordination and sharing problems currently occurring. FERN also offers the opportunity to standardize best-practice inclusive assessment methodologies, by establishing standard templates that call for quantitative data disaggregated by age, gender, disability and geographical location, and qualitative data that includes consultations with the most disadvantaged community members. This would ensure that analyses of disaster risks and impacts, as well as impacts of relief and response programs, adequately considered the situation of the most vulnerable.

## **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### **Are disaster losses systematically reported, monitored and analysed?**

No

### **Means of Verification:**

\* No: Disaster loss database

\* No: Reports generated and used in planning

### **Description:**

The Frontline Emergency Response Network (FERN) offers the opportunity to standardize best-practice inclusive assessment methodologies, by establishing standard templates that call for quantitative data disaggregated by age, gender, disability and geographical location, and qualitative data that includes consultations with the most disadvantaged community members. This would ensure that analyses of disaster risks and impacts, as well as impacts of relief and response programs, adequately considered the situation of the most vulnerable.

### **Context & Constraints:**

A significant challenge identified is coordinated data management. Currently, no disaster database/information system exists. This stems from the past when no particular agency was fully responsible for DRM and there was often confusion which agency was in charge as agencies had different roles in preparedness, response and recovery. EMCI is currently in the process of developing a disaster database DRM being its responsibility.

Currently, data is frequently gathered in multiple incompatible formats, and not always shared with those

with a need to know. Significant gaps exist, both in historical disaster information and in projecting potential impacts of future hazards. Information is frequently lacking on the situation in the Outer Islands, as transport limitations lead to infrequent visits to these islands and consultations with their residents.

FERN, once populated with data and maintained, has the capacity for effective inter-agency information dissemination, and clear provision of checklists, assigned to various agencies, in response to different hazards. It includes a template for communication to the media which should help to resolve conflicting information being spread at the time of a disaster. Ongoing and strengthened investment in community education and preparedness could result in faster and more appropriate responses to a range of hazards, as seen when increasing community awareness of tsunami response protocols resulted in faster and safer evacuation practices during tsunami warnings.

### **Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

#### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

#### **Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

#### **Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

#### **Description:**

Solid progress has been made in four aspects of effective early warning systems: public awareness programs, capacity assessments, the Early Warning Information System, and tabletop and operational exercises. EMCI has organized annual Disaster Awareness Week activities to increase public awareness. It has also visited schools, including in some Outer Islands, to strengthen the awareness of school children. Hazard information materials have also been provided by SOPAC for use by EMCI and other stakeholders. Two relevant assessments have been conducted: an AusAID-funded Tsunami Capacity Assessment in 2008, and an assessment of ICT and human resources needs for early warning systems, conducted by a Technical Adviser to EMCI. No action has yet been taken as a result of these assessments. Tabletop and operational exercises, conducted annually by EMCI, have helped strengthen knowledge and coordination around early warning systems and appropriate actions to take for different kinds of hazards.

In addition, interagency coordination around tsunami warnings improved significantly following the Samoa tsunami in 2009, resulting in clearer communication to the public and faster evacuation of the majority of the population. Learning of the devastation in Samoa, all stakeholders improved their preparedness. Communities developed disaster response plans; the Red Cross sent a volunteer to Samoa to learn about tsunami response, and shared the information with government; government agencies strengthened their own planning. As a result, the response to the February 2010 tsunami warning following the Chile

earthquake was much more effective and it demonstrated a significantly improved level of preparedness.

Some risk-prone communities receive timely and understandable warnings of impending hazard events.

**Context & Constraints:**

Despite progress made, substantial challenges remain. Communities, particularly in the Outer Islands, lack knowledge of warning codes, hazard areas and evacuation points. Confusion persists as to roles, responsibilities and accountabilities, sometimes resulting in failure to share vital information with important stakeholders, or act promptly in responding to hazard forecasts. Communities, government and media lack access to adequate information. Information provided to the public sometimes lacks clarity and could benefit from a more rigorous analysis of likely impacts. Sometimes official information is provided well after other information becomes available on the internet which people do not always analyse accurately.

Early warning drills to date have focused on cyclones and tsunamis, but the need remains to strengthen preparedness for other hazards. EWSs remain heavily dependent on internet and telephone communications supplied by Telecom, which is vulnerable to disasters having its main office close to the shoreline.

Evacuation routes should be clarified and evacuation centres should be equipped with basic facilities. Evacuation procedures should be strengthened, including clarification of which zones should evacuate first, and the importance of conducting headcounts and communicating with emergency officials once evacuated. Evacuation plans must take tourists into account. Finally, thorough analysis and assessment of risks is crucial, to avoid 'evacuation fatigue' and perceptions that tsunami warnings are inaccurate.

Two significant opportunities are the expansion of FERN and the nurturing of increased community interest in disaster preparedness following the Samoa tsunami. FERN includes a template for communication to the media which should help to resolve conflicting information being spread at the time of a disaster. Ongoing and strengthened investment in community education and preparedness could result in faster and more appropriate responses to different hazards, as seen when increasing community awareness of tsunami response protocols resulted in faster and safer evacuation practices during tsunami warnings.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

**Description:**

The Cook Islands are exposed to various hazards that present trans-boundary risks, i.e. tropical cyclones, tsunamis, earthquakes, climate change, and pandemics. The need for regional cooperation is consequently widely acknowledged. Cooperation includes collection, sharing and analysis of data for hazard and risk assessments which provides key inputs for determining suitable risk reduction options, including early warning.

The Cooks Islands have ongoing cooperation dealing with trans-boundary hazards and risks:

- Linkages with the RSMC Nadi Regional Tropical Cyclone Centre.
- Linkages with the Global seismic network.
- Linkages with the Pacific Tsunami Warning Centre and participation in the Pacific Tsunami Capacity Assessment implemented by the Australian Bureau of Meteorology and SOPAC
- Linkages with regional climate change-monitoring efforts supported by SPREP, SPC, WWF.
- For Pandemic: agreement between SPC and WHO.

The partnerships and collaboration are backed by several regional strategic frameworks and information exchange mechanisms, such as:

- The Pacific Plan and Kalibobo Road Map
- The Pacific Regional DM and DRR Framework of Action 2005 – 2015
- The Pacific Islands Framework for Action on Climate Change 2005 – 2015
- Pacific Health and Disability Action Plan (2002)
- Pacific Education Development Framework (PEDF) 2009-2015.

The Cook Islands also partner to a number of regional DRM initiatives:

- The Pacific Risk Exposure Databases, implemented by SOPAC, GNS New Zealand and the Pacific Disaster Center (funding support from WB and ADB)
- The Pacific Humanitarian Team and Regional Cluster approach
- The AusAID NAP Facility providing regional support administered through SOPAC to assist national implementation of the HFA and the Pacific RFA through NAPs and priority initiatives.
- The Pacific regional review of progress in implementing the HFA, the Regional DRM Framework for Action and the NAPs for DRM; processes technically and financially assisted by UNISDR and SOPAC in collaborative approach.

**Context & Constraints:**

Regional programmes and information exchange mechanisms provide for excellent opportunities and increase efficiency, especially in highly technical and specialized areas such as weather forecasting that would be difficult, if not impossible, to fully replicate at national level in small island countries with limited capacities such as the Cook Islands.

Whilst regional initiatives uncover new initiatives and needs, they often do not build in sufficient follow up measures and technical assistance to ensure the long-term sustainability of what they initiate. For small and often under-resourced Emergency management offices such as that in the Cook Islands, it is a considerable challenge to provide the necessary in-country support to take full advantage of what is offered from these regional programmes.

A related concern has been the weak coordination of regional initiatives at national level resulting in high demands on staff.

Although established primarily for early warning communications and response the FERN database once fully activated will serve as a useful tool to strengthen partnerships with local and overseas partners.

## **Fiji** (in English)

### **Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

#### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

#### **Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

No

#### **Means of Verification:**

- \* No: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

#### **Description:**

No multi-hazard risk assessment is undertaken nor is there a standard approach for single hazard assessments. Hazard and risk assessments are only carried out for particular developments and project areas. A rudimentary assessment of Fiji's main hazards is in the 1995 NDMP.

Assessment information in technical and research reports funded by donors is often in formats that are difficult to use. Some investments are made in hazard monitoring systems such as rain and river gauges and seismic stations though more equipment and systems are needed. Earthquake hazard assessment is quite advanced with a national hazard map; national public awareness campaigns; national seismic risk zone maps; and a detailed seismic risk map for Suva. Tsunami Risk assessment is done for Suva with identified high risk areas; evacuation points; and public awareness boards. Flood risk maps for Nadi, Ba and Navua were developed including thresholds for development of flood control measures.

In the key sectors, disaster management plans are founded on hazard risk assessments that led to mitigation measures, eg Finance relocated their archives onto higher grounds; Health relocated a pharmaceutical warehouse.

For the Water & Sewage sector, hazard risk assessments are based on standard procedures and guidelines. There is a draft Water Safety Plan; a Water Act; and water catchments are assessed in terms of hazard risks. Development investment in essential lifeline services as by FEA & Telecom are guided by hazard risk assessment. Similarly government requires risk assessments for its key infrastructure but the practice is yet to be instilled in rural/community level developments.

Some NGO's conduct vulnerability and capacity assessments, assessing some sectors only.

Fiji's EIA legislation is quite comprehensive and mandatory for all new developments. It is being applied

but the process needs to improve on how hazard and risks, including climate risk, are considered.

**Context & Constraints:**

A number of agencies conduct CVA at the community level. They target some of the most vulnerable and/or distant and remote communities. Mostly they work in isolation and lately are binding together through initiatives with the PCIDRR in Yasawas, Kadavu and Vanua Levu. The outcomes are good but still very project oriented being undertaken in selected locations mostly based on local knowledge.

Improvement in information sharing is essential to ensure that there is sufficient input from technical agencies with focus on mapping of hazards, vulnerabilities and exposures and the development of common understanding of risk terminology. Gender and human rights issues are often overlooked, and training and awareness raising is needed.

Community input is provisioned in the EIA process but in practice contribution is weak due to limited community level technical expertise. Improving hazard awareness is needed and lead agencies need to recognise their responsibility, eg no risk assessment has been conducted on Evacuation Centres in rural areas to ensure they are in safe locations. A multi-hazard coordinated approach at the community level is desired as to avoid uncoordinated and duplication of efforts when technical agencies on their own create multi-entry points at community level. This would also address weaknesses in implementation and enforcement. A very sensitive area is the monitoring of the Foreshore Development Act. The lack of government personnel compounded with little community expertise and empowerment has led to some developers practically ignoring approvals.

A fundamental deficiency is the absence of specific articulation in DRM policy on the use of DRR cost benefit analysis. This is essential for planning investments at all levels, and leaders need to be sensitized to the usefulness of hazard data in sectoral development planning. A policy framework supporting the development of integrated multi-hazard risk assessments is a requirement.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Are disaster losses systematically reported, monitored and analysed?**

No

**Means of Verification:**

\* No: Disaster loss database

\* Yes: Reports generated and used in planning

**Description:**

Information is not readily accessible for there is no centralized point or database where hazard/risk information is monitored and archived. DRM data sets are spread across departments and NGOs without a national inventory. Some data sets as with Statistics and Planning are not available to the general public. The development of a national risk exposure database has started. The Pacific Disaster Net it is not yet widely used by national stakeholders.

Systematic dissemination of information becomes a problem given such a spread of sources.

Each agency keeps assessment data mostly for in-house use in planning for response, rehabilitation and development. All sectors submit their development proposals to the Development Sub-committee for approval based on set standards and checklists. DRR is addressed in this process but there is no monitoring system.

Key sector lead agencies are very proactive. Water & Sewage assesses disaster losses in water supply systems; Health assesses and monitors disease outbreaks; the Seismic Unit in MRD maintains an earthquake hazard event database; and Met Office a cyclone event database. Such information kept in key agencies is accessed in EIA processes to assist with incorporation of DRM measures. In practice the integration of assessment information happens with Town & Country Planning (covers urban & rural areas, not squatters) the authority that gives ultimate approval for development interventions.

Community profiles are put together for each village/settlement. This is spearheaded by Health with NGOs support. Community focal points forward information to the provinces where profiles are developed and updated through monthly questionnaires on key baseline in the communities and used for development planning and response work.

There is no systematic policy for monitoring, archiving and disseminating data on key hazards and vulnerabilities. Commitment exists and concerted efforts are being made to improve progress in terms of this indicator.

#### **Context & Constraints:**

Generally there is still difficulty to differentiate between Hazard Assessment (HA) and Damage And Loss Assessment (DALA), perhaps from insufficient understanding of the subject of DRM. As noted in Core Indicator 1 there is no common approach or standardized methodology across the sectors for assessing hazards and vulnerabilities. It is the same weakness in impact assessment of disasters which record direct loss assessments and have not included indirect losses and information on social impacts. Both assessments should sufficiently integrate social elements and desegregated data on gender, age, diversity etc.

The absence of a national information network / system is limiting progress in cross-sectoral coordination, sharing of information and improving knowledge in common DRM activities. Technical Agencies are complacent with design and construction standards they use and unless costs benefit analysis show otherwise will not be convinced of DRR assessment approach. Records from past disasters are available and they are important in building a dossier on vulnerable elements, with understanding on attendant shortcomings:-

- NDMO coordinated disaster reports provide comprehensive summaries of humanitarian/ response assistances but limited in the overview of damages/losses/impacts across all sectors.
- MRD maintains an earthquake hazard event database that records events since 1887; does not record damage/loss information.
- Met Office maintains a cyclone hazard event database; does not record damage/loss information.

In a few sectors where risk evaluation is undertaken and information on hazard and vulnerabilities does reach decision makers (such as ITC, Water sector, Health) insufficiency in resources to mitigate risk completely limits implementation of DRR measures. This leads to high level of accepted risk.

#### **Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

\* Yes: Early warnings acted on effectively

\* Yes: Local level preparedness

\* No: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

**Description:**

The level of progress in establishing EWS varies between hazards, is very much agency driven and influenced by the geographical spread of the country. There is no multi-hazard EWS.

Cyclone EWS is the most developed and warnings are received in a timely manner; the public is aware of what action to take; also curfew has helped to protect people from injuries and heighten security. Records indicate much less injuries and deaths in recent years compared to decades ago eg 10 deaths in TC Bebe (Category 4, 1972) and one death TC Tomas (Category 4, Mar 2010). Tsunami EWS is also well established with SOPs, training and drills in place particularly noted in some schools but with limited coverage due to funding constraints. Recent efforts are in progressing flood EWS for Navua, Nadi and Ba all of which are well linked to Nadi Met Office. The rest of the country has traditional flood warning systems based on informal information exchange and traditional flood early warning signs; flash flood is a new flood dimension for some communities compromising traditional EWS. More equipment to support flood monitoring is needed.

Key sectors adapt sector EWS on information from Met Office as well as from traditional warning signs. With Health, procedures are in place including provisions for guidance on trans-boundary hazards like pandemics.

Communication for EW at local level is done via public radio broadcast which has nationwide 24/7 coverage, and reaches distant communities. Other communication systems as mobile and TV are almost at par in achieving nationwide coverage. For Suva, NDMO has arranged to disseminate warnings via mobile phones and is preparing a public siren tsunami warning system. The tourism sector, particularly for surf wave travel, uses its own expert source as well as information from Fiji Met Service.

**Context & Constraints:**

Even though the media has the best coverage across the country, the effectiveness in delivery widely varies across the various systems, with noted differences too in reporting across the various hazards. There is a need to develop better partnership with the media and develop agreed guidelines or reporting framework but it cannot be done with the lack of personnel in NDMO to initiate and drive this through to completion.

The nation has vastly improved Tsunami EWS with well established SOPs, training and drills but it is limited in coverage due to funding constraints. It needs to be expanded beyond Suva with more public

awareness as well. With the improvement of telecommunication technology, the NDMO is exploring opportunities in relation to effective dissemination of EWS reaching the last mile.

More accurate forecasts on rainfall and severe weather and their dissemination are needed to improve warning of potential flood risks. It's a continuous task enhancing efforts to raise awareness on warnings/warning signs and how to respond appropriately. There has been very little effort to consult with women's organisations or to identify high-risk groups of women and men, boys and girls; this is critical and best addressed in strengthening DRM training.

The existing traditional knowledge on early warning signs and disaster preparedness should be documented and shared, particularly to urban dwellers dislocated from traditional settings and most likely their knowledge has been eroded. The relevance and applicability of traditional knowledge in view of changing hazard characteristics due to the impacts of climate change will need to be analysed.

## **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

### **Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

### **Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

### **Description:**

Fiji is vulnerable to a range of hazards that present trans-boundary risks and recognises the need for regional cooperation. These include tropical cyclones, earthquakes and tsunamis, pandemics, volcanoes, and climate change. Cooperation includes the collection, sharing and analysis of data for risk assessments that are essential to guide decision in determination of suitable risk reduction measures including national and regional EWS.

The Fiji Government, through Fiji Met Services, is committed to operating 24/7 the Regional Specialised Meteorological Centre for Cyclone in Nadi. The RSMC—Tropical Cyclone Warning takes wider responsibility in providing effective regional meteorological and climatological services, including regional specialised meteorological and climatological services to the Pacific. Its area of responsibility is delegated from WMO that includes some of the remotest Pacific Island countries as Tuvalu, Kiribati and Niue.

For earthquakes Fiji is linked with the Global Seismic Network and separately maintains a Tonga – Fiji Integrated Seismic Monitoring Systems Network. And for tsunami Fiji is linked to the Pacific Tsunami Warning Centre and participates in the Regional Tsunami Exercise (UNIOC/ PTWC). Being in the Pacific it

shares with island countries a collective concern on Sea Level Rise and Climate Change and collaborates in regional monitoring programmes through SPREP, SPC and WWF supported by WHO, FAO, ADB and regional scientific institutions in mapping of impacts.

Fiji collaborates too in the management of trans-boundary risk impacts through partnerships in a range of regional strategic frameworks and information exchange mechanisms, such as:

- The Pacific Plan and Kalibobo Road Map
- The Pacific Regional DM and DRR Framework of Action 2005 – 2015
- The Pacific Islands Framework for Action on Climate Change 2005 – 2015
- Pacific Health and Disability Action Plan (2002)
- Pacific Education Development Framework (PEDF) 2009-2015. Regional Meteorological Service Directors Meeting
- Annual Meetings of regional Inter-governmental Organisation

#### **Context & Constraints:**

Much work has evolved in building regional cooperation to manage trans-boundary risks and to date this remains very much the intelligence of key focal agency with little public awareness on these types of risks so as to feature in local / national hazard and vulnerability assessment. The public at large has little knowledge and information of trans-boundary risks other than tsunamis, sea level rise, climate change, ENSO cycles and tropical cyclones. Social risks driven by drug and alcohol abuse are not widely seen as a trans-boundary risk despite the recent emergence and conviction in Fiji of regional drug operators, manufacturers and traffickers.

Despite that a good level of regional information sharing is existing; more is needed to facilitate information dissemination of regional activities with in-country actors.

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## **Marshall Islands** (in English)

### **Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

#### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

#### **Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

No

#### **Means of Verification:**

- \* No: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

Although not fully coordinated, some progress is being achieved in relation to the development of national and local level risk assessments. Outer Island Profiles are being developed through a partnership between Ministry of Internal Affairs (IA), International Organization for Migration (IOM) and USAid and local organizations such as Marshall Islands Conservation Society (MICS). The Outer Island Profiles collect information on response capacity by stocktaking things such as number of schools (and their ability to serve as an Emergency Shelter), number and condition of water catchments, warehousing, radios, internet access etc. Basic demographic information is also collected (e.g. number of house holds, people and gender breakdown).

Coastal risk assessments and surveys are being undertaken by several organizations, including EPA, MICS, Natural Resource Assessments Surveys (NRAS) Team, Marshall Islands Marine Resources Authority (MIMRA) and assistance from the University of Auckland. While the EPA has plans to develop a database with baseline information, progress on this front is limited. CMAC provides a forum for information exchange and also provides the means to implement cost sharing especially when undertaking work on the outer islands.

**Context & Constraints:**

The fact that there has not been a major disaster for some time is a challenge in raising the profile of DRR and DRM. If a disaster is not in the living memory of most of the population, it remains a challenge for disaster managers to highlight the importance of DRR/DRM amongst the public and the importance of understanding the procedures for emergency communications and response.

Conducting risk assessments is a time consuming and resource intensive activity, made more difficult by the scattered and isolated nature of the RMI's islands and atolls. Government ministries and civil society organizations overcome part of this challenge by cost sharing where possible, and increasingly, through sharing of information.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Are disaster losses systematically reported, monitored and analysed?**

No

**Means of Verification:**

\* No: Disaster loss database

\* No: Reports generated and used in planning

**Description:**

Detailed data and general information on past disasters is limited in the RMI, with no disaster loss database and few reports on previous events. The inadequate resourcing of NEMCO is partly a reason for this, in addition to the insufficient level of importance placed to data collection and distribution within ministries. The National Weather Service (NWS) provides regular information on hazards and

vulnerabilities (e.g. impending drought) to newspapers and radio. However, it is up to the media as to whether or not the information makes the news. NWS also provide weather and climate data to ministries such as the Ministry of Health (MoH), EPA and donors such as USAID. There are a number of technical agencies that collect and maintain GIS databases for their respective areas of expertise. EPA collects and maintains spatial datasets of current land use, vegetation, coastal development, water quality, sewage and potential pollution sources as well as monitor ongoing development.

**Context & Constraints:**

As mentioned above, the lack of major disaster events in recent years has led to a little emphasis on this core indicator. It is difficult for time-poor ministry personnel to dedicate themselves to something they see little benefit in doing. Thus, the current lack of a data collection system (and responsibility for doing so) has resulted. There are opportunities within agencies such as EPA to build on existing databases developed for environmental monitoring.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

\* No: Early warnings acted on effectively

\* No: Local level preparedness

\* No: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

**Description:**

The National Weather Service (NWS) communicates on a regular basis with US National Oceanic and Atmospheric Administration (NOAA) counterparts on potential events which may lead to disasters, e.g. typhoons, drought, high seas etc. NWS has also trained five people from outer islands on early warnings for disaster events and cell phones were distributed for this purpose. Other equipment NWS has access to includes radios, "chatty beetles" (early warning devices), batteries and solar power equipment for times of disaster.

The Office of the Chief Secretary is responsible for warning the public of disasters, and has radio contact with all outer islands. Most schools also have radios which can be used for distributing early warnings. Some WUTMI members have personal radios, and MICS has a radio network of 15 – 17 radios on outer islands. The media, via the radio station, is active in distributing warnings in times of disaster.

An additional achievement of incidental nature is that the Alele Museum has traditional knowledge workshops on weather forecasting, which can also be used as a form of early warning.

**Context & Constraints:**

Again, the absence of severe disasters in recent decades has led to considerable levels of apathy towards the importance of early warning systems. It is thought that if needed, the radio network, in addition to word-of-mouth, will suffice. However, if radios are to be relied upon, far more are needed and back-up energy supplies and batteries should be better resourced.

A further constraint is the isolated nature of outer islands, which makes communication difficult at all times. Regular testing of radios and back-up energy supplies is therefore needed to ensure communication channels are functioning when they are most needed.

## **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### **Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

### **Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

### **Description:**

Regional and trans-boundary risks affecting the RMI include tropical storms and typhoons; climate change; earthquakes, volcanic eruptions and tsunamis; pollution, including exposure hazardous waste and commercial transport accidents; health pandemics; and external market influences.

RMI is an active participant in several regional and global strategies and frameworks, including:

- Micronesia Challenge
- Convention on the Conservation of and Management of High Migratory Fish Stocks in the Western and Central Pacific Ocean
- Pacific Disaster Risk Reduction and Disaster Management Regional Framework for Action 2005-2015
- Pacific Regional Framework for Action on Climate Change
- Pacific Plan
- Pacific Regional Action Plan on Sustainable Water Management
- Pacific Adaptation to Climate Change (PACC)
- Mauritius Strategy for Sustainable Development of Small Island Developing States 2005
- Hyogo Framework for Action 2005 – 2015
- UN Framework Convention on Climate Change

Climate change is being addressed via several regional initiatives such as the PACC-Project (GEF-UNDP and SPREP partnership). The Action for the Development of Marshall Islands Renewable Energy (ADMIRE) project also contributes to climate change mitigation. The aim of the newly drafted National Policy on Climate Change is to eventually mainstream climate change issues into all sector plans.

The Micronesia Challenge is a sub-regional initiative, aiming to achieve effective conservation across Micronesia. The Reimaanlok National Conservation Area Plan aims to fulfill the RMI's obligations under the Micronesia Challenge, addressing conservation issues such as marine and terrestrial pollution. Traditionally, conservation has been very much part of Marshallese culture, however, over time, this has been weakened.

At a national level, the RMI's National Energy Policy (2009) promotes indigenous renewable energy sources, and a focus on promoting local food crops and increasing domestic water reservoirs addresses the high reliance on imported products and lessens the impact of external global market influences on RMI.

**Context & Constraints:**

Being a low lying, isolated atoll nation, the RMI is highly exposed to regional trans-boundary risks, especially climate change. Its high reliance on imports and limited capacity to cope heightens its levels of vulnerability, thus it is dependent on donor assistance to overcome challenges associated with climate change. It will become even more necessary for land owners to be aware of the risks imposed by climate change, so that future development is modified and strengthened accordingly.

## **New Zealand** (in English)

### **Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

Yes

**Means of Verification:**

\* Yes: Multi-hazard risk assessment

> National Hazardscape Report (2007) [http://www.civildefence.govt.nz/memwebsite07.nsf/wpg\\_URL/For-the-CDEM-Sector-Publications-National-Hazardscape-Report?OpenDocument](http://www.civildefence.govt.nz/memwebsite07.nsf/wpg_URL/For-the-CDEM-Sector-Publications-National-Hazardscape-Report?OpenDocument)

\* NA % of schools and hospitals assessed

\* Not aggregated schools not safe from disasters (specify absolute number)

\* No: Gender disaggregated vulnerability and capacity assessments

\* Yes: Agreed national standards for multi hazard risk assessments

**Description:**

The Officials' Committee for Domestic & External Security Coordination has published the National Hazardscape Report (2007) (link below), based on contributions from agencies responsible for addressing hazard risk. The report provides a contemporary summary of the physical nature, impacts, distribution and frequency of occurrence of the seventeen key hazards affecting New Zealand. These include geological,

meteorological, biological, technological and infrastructure failure hazards. It also provides general information on the current management of hazards, though focusing on reduction and readiness initiatives.

The National Hazardscape Report assists with identifying and assessing hazards and risks to be addressed through national policies and plans, and the relevant legislative frameworks. More precise risk assessments are carried out as part of these processes.

Additionally, specific hazards (such as seismic and wind loadings) are modelled at a national scale to support national standards for construction.

Local authorities undertake hazard and risk assessment as part of their risk management processes in environmental planning and developing Civil Defence Emergency Management Group plans. It is at this level that research on specific hazards and risks, and management options, generally takes place.

### **Context & Constraints:**

Challenges include improving ability to assess the full range of consequences and vulnerabilities, especially in regard to secondary impacts, undertaking comparative economic analyses and assessing non-monetary (social & environmental) costs.

Other challenges concern improving understanding of inter-dependencies across sectors, and overcoming commercial sensitivity that may limit disclosure by private entities in some circumstances.

For means of verification regarding school and hospital assessments (assigned NA above), it is important to note that all New Zealand schools and hospitals are required to meet existing stringent seismic safety codes. Additionally, key facilities such as regional hospitals and emergency operations centres are expected to have critical systems redundancies.

### **Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

#### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

#### **Are disaster losses systematically reported, monitored and analysed?**

No

#### **Means of Verification:**

\* No: Disaster loss database

\* Yes: Reports generated and used in planning

#### **Description:**

There is no centralized system for collecting and collating all hazard information and risk data.

There are different systems for monitoring the main natural hazard agents (meteorological or geological), and these generally form part of, or link to, early warning systems (see Core Indicator 3 below).

Data on the human elements of hazards, including vulnerabilities, are collected and disseminated through many means. Base population statistics are collected five yearly by Statistics New Zealand, with data available at different scales often down to small mesh-blocks. Statistics New Zealand also collects other

relevant data on a more regular basis. Local government, central government and NGOs may collect additional data relevant to their responsibilities.

Various agencies gather information on different aspects of losses from actual hazard events. For example, the Earthquake Commission collects claims data for earthquake and land deformation damage to private dwellings and associated land that it insures. Private insurance companies may collect and disseminate their data also. The Ministry of Agriculture and Forestry maintains information on the rural sector economy that includes its losses from hazard events.

A multi-hazard disaster loss modelling capability at the regional scale is being developed under a national research funding contract. It aims to provide decision support for hazard risk planning and for response and recovery.

**Context & Constraints:**

Work is continuing on developing data sharing protocols and mechanisms, to be underpinned by a common national geospatial infrastructure. Development costs and a lack of consistent data are the key constraints on quick progress in increasing loss modelling capability.

**Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* Yes: Communication systems and protocols
- \* Yes: Active involvement of media in early warning dissemination

**Description:**

Regional councils and the National Institute of Water & Atmospheric (NIWA) monitor, model and advise on river flows (flooding), climatic events (droughts), storm surge, sea level rise, and coastal geomorphologic processes. Climate and weather-related event forecasting is increasingly becoming more accurate, with services tailoring information that enables people and businesses to undertake preparedness steps such as moving farm stock.

GeoNet is a project to build and operate a modern geological hazard monitoring system in New Zealand. GeoNet comprises a network of geophysical instruments, automated software applications and skilled staff. It detects, analyses and informs responses to earthquakes, volcanic activity, large landslides, tsunamis, and the slow deformation that precedes large earthquakes.

The MetService is contracted by Government to monitor and disseminate free, via website and other media, severe weather warnings, outlooks and watch forecasts. Select organisations, and others using a paid for service, may also receive direct notice.

New Zealand receives advisories and warnings from the Pacific Tsunami Warning Centre in Hawaii, and has commenced with installation of a local sea level monitoring network. Local public alert systems have been upgraded in many areas over the last 18 months.

A 24/7 National Warning System operates as part of the National Civil Defence Emergency Management arrangements. Warning messages are communicated to relevant response agencies and, when necessary, directly to the public via the media. Response agencies develop their own internal and local area systems as an extension of the national network.

Memoranda of Understanding, supported by procedures and exercises, are in place with major radio and TV broadcast companies to provide public warnings. These have been recently tested with tsunami warnings in the Pacific. Following improved understanding of agencies' needs, and advances in technology, these arrangements have been revised and strengthened.

### **Context & Constraints:**

The efficacy of early warning systems for meteorological events is generally well established.

National warning messages for tsunami have also been improved. However, ongoing awareness and appropriate responses may tail off from the high level of support following recent events and exercises. Establishing effective warning systems and response arrangements for near source tsunami events, especially during the holiday season in isolated coastal areas, is an ongoing challenge because of limited local resources.

Keeping abreast of new forms of informal networks of social media for receiving and sharing information also poses ongoing challenges, due to resource constraints.

For some hazard risks, for example earthquake and local source tsunami, the key concerns are less about public warnings, and more about individuals being prepared for self-action, necessitating ongoing public education programmes at both the national and local level.

### **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

#### **Level of Progress achieved:**

4 - Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

#### **Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

#### **Means of Verification:**

\* Yes: Programmes and projects addressing trans-boundary issues

> IOC Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG-PTWS) Steering Committee (2010) <http://www.ioc-tsunami.org/>

\* Yes: Regional and sub-regional strategies and frameworks

\* Yes: Regional or sub-regional monitoring and reporting mechanisms

\* No: Action plans addressing trans-boundary issues

### **Description:**

Because New Zealand shares no land boundaries with other countries, its risk assessments are in the main domestic processes only. New Zealand agencies operating at the regional and local levels are expected to consider cross-jurisdictional boundary issues in their risk reduction and planning.

New Zealand cooperates globally within international science fora, such as climate change, tsunami and seismic modelling. New Zealand agencies also participate in international fora that undertake risk assessments and set policy and best practice standards, to manage regional and global risks. For example, the Ministry of Health works with the WHO on public health monitoring and pandemic risks and the Ministry of Civil Defence & Emergency Management with the IOC/PTWS on pan-Pacific tsunami hazards.

The New Zealand Government is committed to helping to combat climate change and reducing New Zealand's greenhouse gas emissions as one of its key environmental priorities. The Government's principal policy response to climate change is the New Zealand Emissions Trading Scheme (NZ ETS) (link below).

New Zealand's major climate change mitigation policies are detailed in the Policies and Measures chapter of New Zealand's 5th National Communication to the United Nations Framework Convention on Climate Change (UNFCCC) (link below). Major policies and measures are also illustrated in a table of policies and measures contained within the same document (link below).

New Zealand supports regional efforts in the South Pacific to improve disaster management capacity under the Community Risk Programme of the South Pacific Applied Geoscience Commission (SOPAC). New Zealand also works directly with many countries of the region (notably Tokelau, Niue, Cook Islands, Tonga, Samoa) on disaster risk reduction and resilience capacity building through the Ministry of Foreign Affairs & Trade's Pacific Division and International Development Group programmes.

### **Context & Constraints:**

The key challenge is that New Zealand's relatively small size and distant location can mean that ongoing involvement in many regional and international activities is a significant resource issue for the key agencies and personnel concerned.

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## **Samoa** (in English)

### **Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### **Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

No

**Means of Verification:**

- \* No: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

The CIM Plans, lead by the Planning and Urban Management Agency (PUMA) and the DMO of the Ministry of Natural Resources and Environment (MNRE), have been developed and provides baseline information on coastline locations formed the basis of hazard mapping for the CIM Plans. The CIM Plans provide a description of the existing environment; identify and assess the resilience of existing infrastructure against coastal hazards and provide potential solutions and ways to reduce susceptibility to coastal hazards.

Disaster risks and climate change issues are also key components of the risk assessment required for any development consent application. Proponents are required to provide all relevant information including development designs, specifications, site plans and environmental impact assessment to facilitate risk assessment in addition to physical site inspection of any development. This process is provided for under the PUM Act 2004. The development consent process is similar to the Comprehensive Hazard and Risk Management (CHARM) process – the regional risk management guideline; however there is no information which indicates that Samoa has attempted to adopt the latter.

National standards for multi-hazard risk assessments include the national building code as regulated under the Ministry of Works Act 2002, the Environmental Impact Assessment (EIA) process through the EIA regulations 2009 and the NDMP 2006-2009 where the New Zealand/Australian Risk Assessment Standards were used, managing pandemic events in the National Pandemic Plan 2008, fire hazard assessments under the Fire Hazard Plan 2009, invasive species hazard assessments, and the climate change national communication 1st and 2nd.

Cost-benefit analyses for disaster management and disaster risk reduction have been undertaken in Samoa which involved an economic assessment of flood management options for the lower Vaisigano catchment, Apia, Samoa (2007). Preliminary assessment of volcanic hazards on both islands was conducted in 2006 with the development of a volcanic eruption implementation plan.

**Context & Constraints:**

Implementation of the CIM Plans is impeded by budgetary constraints and needs to be made a statutory document to ensure compliance. While risk reduction criteria have been incorporated in the regular processes for urban land use and planning and have been introduced through sectoral development policies, they are in its preliminary stages and in most cases needs to be revisited as vulnerability is complex and multifaceted, requiring analysis from social, economic and poverty perspectives, assessment of natural hazards and related vulnerability should be assessed as part of all forms of project appraisal, rather than confined to environmental review alone.

## Priority 2: Core indicator 2

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### Level of Progress achieved:

2 - Some progress, but without systematic policy and/ or institutional commitment

### Are disaster losses systematically reported, monitored and analysed?

No

### Means of Verification:

\* No: Disaster loss database

\* No: Reports generated and used in planning

### Description:

The system to monitor, store and disseminate hazard and vulnerability data has been available in government ministries, however the format and standards of existing data is not uniform. Monitoring information natural and human-induced hazards and their impacts is not centralised and cost-loss estimates are not systematically collated and analysed, also there is no national disaster information database to assist planners with basic statistics to measure either improvements or setbacks.

Samoa has used expert evaluation methods to combine hazard and vulnerability assessment, where local efforts to produce these studies have been teamed up with international groups that provide technical and financial support and promote capacity building and knowledge transfer. Despite this, very few ministries are making use of the data and information generated from these studies and do not make practical use of the recommendations, signifying the need to strengthen the links between research and practice.

### Context & Constraints:

The major challenge being the lack of local capacity and resources in the application of modern technology to develop a comprehensive system for monitoring, archiving data and disseminating information down to the community.

In most cases, end users have limited knowledge in the application of research/study results and most often lead to information misuse or misinterpretation. In addition, the concrete actions listed in the different studies often times create confusion and presents difficulties for decision-makers as to where to allocate scarce resources. Though many regional/ international agencies have or have acquired funding to conduct the studies they do not however possess the resources to assist countries to implement the recommended actions.

## Priority 2: Core indicator 3

*Early warning systems are in place for all major hazards, with outreach to communities.*

### Level of Progress achieved:

2 - Some progress, but without systematic policy and/ or institutional commitment

### Do risk prone communities receive timely and understandable warnings of impending hazard events?

No

### Means of Verification:

- \* No: Early warnings acted on effectively
- \* No: Local level preparedness
- \* No: Communication systems and protocols
- \* No: Active involvement of media in early warning dissemination

**Description:**

Alerting response agencies, media and the public is done through radio and TV links around the country and also through direct telephone calls to the response agencies. In addition the NDMP also require the media to give first priority to airing and broadcasting public information relating to a disaster or emergency event. However this system is highly dependent on the populace listening to the broadcasted information and that transmission is still operational as most of these radio and television stations cease broadcasting at midnight. The DMO, in collaboration with the SamoaTel and Digicel utilise the GSM network to alert the public, media and response agencies through SMS texting. However this system has experienced technical problems with line congestion, recipients not receiving warnings in time due to phones turned off, low battery, low and no reception, warning focal point away from their designated locality.

Local level preparedness for tropical cyclones is adequate, but needs improvement in clarifying weather bulletin language and terminology. On the other hand, there is a much larger scope for improvement for fast-onset hazards such as Tsunamis in terms of the community level identification, awareness of evacuation routes and safe sites. Media organisations that are key in disseminating warning have developed response plans to help coordinate issuing of public warnings via radio, TV and newspapers.

A Regional Early Warning Strategy (REWS) aimed at identifying a range of initiatives for early warning for the different hazards facing Pacific countries is being pursued through a number of mechanisms. In May 2009 SOPAC in collaboration with the WMO and the SPREP coordinated and facilitated a Joint Pacific Regional Meeting of Meteorological Service Directors and Disaster Managers. This forum was aimed at strengthening links between key sectors for the enhancement of end-to-end early warning systems.

**Context & Constraints:**

Through DMO trainings, some villages utilise existing village structure to identify and receive early warning communications. This needs to be built on by encouraging villages to develop warning plans to provide guidelines to villagers to know what to do and to ensure that future warnings reach every member of the community including those with special needs and vulnerable groups.

**Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues

\* Yes: Regional and sub-regional strategies and frameworks

\* Yes: Regional or sub-regional monitoring and reporting mechanisms

\* No: Action plans addressing trans-boundary issues

**Description:**

Samoa participates and contributes to Disaster Risk Reduction and Disaster Management Framework for Action 2005-2015 and a number of other regional frameworks, declarations and policies including, The Pacific Regional Framework on Climate Change, The Pacific Island Regional Ocean Policy, The Regional Action Plan on Sustainable Water Management, Declaration of the Pacific Health Summit for Sustainable Risk Management, The Pacific Regional Action Plan on HIV/AIDS and the Pacific Regional Framework on Agriculture. Within the Pacific Plan, Initiative 5.1, the Pacific Islands Forum Secretariat (PIFS) is tasked with strengthening of national sustainable development strategies which also include links between national planning and budgetary process and sectoral strategies, including disaster risk management.

Recognising that there are many international and regional development partners supporting member countries in their national development effort, including disaster risk management, SOPAC coordinated the formation of a Pacific Disaster Risk Management Partnership Network. The Network comprises over thirty regional and international organizations, including SOPAC, PIFS, UNDP and World Bank. The main objectives of the Network are to:

- Provide regional support for the development and implementation of Strategic National Action Plans (SNAPs).
- Establish and sustain a regional network of regional assistance and development partners that work in the different fields of disaster risk reduction and disaster management to improve regional cooperation, coordination and collaboration.
- Strengthen the key thematic areas identified in the Pacific Framework for Action 2005 –2015, as endorsed by the Pacific Leaders and in other associated frameworks and strategies.
- Monitor and evaluate national progress against the targets of these national action plans.
- Reduce duplication of efforts and to ensure that assistance is built on the efforts and experiences of each other.

**Context & Constraints:**

Knowledge and skills transfer processes to national level are weak and remains a major and persistent problem and the onus of addressing this issue remains in the lap of development partners and donors. Challenges still exist in ensuring enhanced articulation and harmonisation of priority areas and programmes between regional frameworks to avoid duplication and to ensure activities are aligned to national priorities.

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## **Solomon Islands** (in English)

**Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

**Level of Progress achieved:**

2 - Some progress, but without systematic policy and/ or institutional commitment

## Is there a national multi-hazard risk assessment available to inform planning and development decisions?

No

### Means of Verification:

- \* No: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

### Description:

National risk assessments exist for some specific hazards. Key sectors/infrastructure in urban areas undergoes hazard risk assessments but this is not replicated in rural areas. No national standards for multi-hazard risk assessment exists, however there is commitment to rectify this. Some donor organisations conduct hazard risk assessments as part of their regular programming activities prior to embarking on projects. NGO's conduct vulnerability and capacity assessments in some sectors and vulnerability assessments are an integral part of the NAPA process. Red Cross has conducted DRM capacity assessments for specific hazards.

Gender issues are often overlooked in terms of planning implications based on hazard risks, however 'gender in emergencies' training was conducted by UNDP in 2010 in an effort to raise in-country awareness. The NDMO and NGO's are also making a concerted effort to include women's organizations in their DRM work. Provincial disaster officers are compiling provincial hazard risk profiles. Currently, the PCIDRR project and the Pacific Conference of Churches pilot DRM project are working with communities to identify hazard risks. Some commitment and progress exists in terms of this indicator, but this is still at the early stages and not uniform in terms of all hazards and/or sectors.

### Context & Constraints:

The Solomon Islands is highly susceptible to a large variety of natural hazards (volcanoes, earthquakes, tsunami, cyclones, flood events, land slides etc) but in-country capacity to monitor and assess them is limited due to financial, technological and human resource constraints. Similarly, in terms of epidemics, the Ministry of Health has established 5 sentinel sites for monitoring and testing specimens however resources would be stretched if an outbreak was to affect several provinces simultaneously. Maintaining trained and skilled staff is a challenge when more lucrative opportunities are available. It was suggested that perhaps the SI government could consider offering incentives to staff to retain their services (e.g. tax exemptions).

Another challenge is a lack of knowledge in terms of the importance and usefulness of hazard data for all sectors in terms of planning. Again, the issue of political will to incorporate DRM into financial and development decision-making is relevant in this context. It was highlighted during the multi-stakeholder workshop that even if hazard assessment data were to be available, budget constraints may limit consideration of the findings if implementation of recommendations based on the information would lead to increased project costs. Promoting cost benefit analysis is necessary in order to counteract this. A policy framework supporting the development of integrated multi-hazard risk assessments is a requirement.

## Priority 2: Core indicator 2

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

### Level of Progress achieved:

2 - Some progress, but without systematic policy and/ or institutional commitment

### Are disaster losses systematically reported, monitored and analysed?

No

### Means of Verification:

\* No: Disaster loss database

\* No: Reports generated and used in planning

### Description:

Disaster losses are not currently systematically reported, monitored and analysed. There is a joint project proposed by Red Cross and NDMO to enable consolidation of data in regards to losses and impacts. Some disaster loss information exists but normally different sectoral Ministries have their own reports/assessments made eg. Health, Education, Infrastructure. Information is currently spread throughout different institutions and no centrally collected information exists. The NDMO plans to begin work soon, with support from SOPAC, to establish a DesInventar database to allow for the analysis of disaster impacts and identification of high-risk areas. The NDMO has recently recruited a Disaster Information Officer who will be responsible for managing and collating information for the system.

Information on exposure to hazards is made available to the public via various forms of media (newspapers, radios, TV, internet, posters), through public awareness campaigns and workshops. During the cyclone season information is disseminated on exposure to storm risk. There does not appear to be many options for communities to proactively acquire information on hazard risks in their area. Contacting the NDMO or Provincial Disaster Officers directly appears to be the only option.

There is currently no systematic policy in terms of monitoring, archiving and disseminating data on key hazards and vulnerabilities, however commitment does exist and concerted efforts are being made to improve progress in terms of this indicator.

### Context & Constraints:

A major challenge is to gather and share existing information between different actors. Some institutions are inclined to keep information to themselves or share it only with donors that provide funding for its collection. Information gathered from joint assessments is distributed through the NDMO and NGOs. It is recommended that systematic, structured information on hazards and vulnerabilities be centrally located and made available in formats that are applicable for use by decision-makers.

There are several challenges in terms of making information on exposure to hazards available to the public. These include; limited ownership of HF-radios & televisions in communities; very limited access to internet throughout the country except for some residents in urban areas; lack of availability of pamphlets in Pidgin and provincial dialects, which is compounded by low levels of literacy. Providing greater opportunities for communities to access appropriate information on hazard risk is required.

## Priority 2: Core indicator 3

*Early warning systems are in place for all major hazards, with outreach to communities.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

**Means of Verification:**

\* No: Early warnings acted on effectively

\* Yes: Local level preparedness

\* Yes: Communication systems and protocols

\* Yes: Active involvement of media in early warning dissemination

**Description:**

There are a number of inconsistencies in terms of this indicator.

EWS related to cyclones are received in a timely manner whereas tsunami warnings are generally not. A major reason for this is the fact that out of 19 tsunami events in 80 years, only one had a long lead-time in terms of being generated at a significant distance away all others were generated 'near shore'. After a cyclone has been confirmed, it takes approximately 15 minutes to issue the warning via radio.

Some risk-prone communities receive timely and understandable warnings of possible events, but not all communities, and effective communication mechanisms to warn people of potential disasters are not in place for all hazards. Authorities try to disseminate warnings and church bells/conch shells are used to alert communities in some places. 48 villages have been trained on proper use of alarms, warnings etc. A framework/flowchart for EWS information flow is in place. NDMO has a set of protocols for who contacts whom after a warning is received. This system will be tested during a drill scheduled to take place in November '10.

In general, warnings seem to be acted upon appropriately when received, but not always. For instance concerns about economic survival have been known to affect how people act after receiving warnings. The media is actively involved and plays a big part in early warning and is often the only available medium for message dissemination.

No appropriate procedures for end-to-end EWS are in place. Challenges remain in terms of getting warnings from Honiara to remote communities in a timely and appropriate manner. People use and often rely on traditional EW information and local knowledge related to hazards and preparedness based on past experience (running to the hills, observing animal behaviour, changes in flora and fauna etc). However, current changes in weather patterns may challenge the use and effectiveness of some traditional knowledge. Some community-based DRR programmes do discuss and document traditional knowledge and signs of hazard warnings.

**Context & Constraints:**

There are insufficient radios in communities for them to receive warnings adequately throughout the country and availability of batteries affects this issue too. It has been suggested that provision of clockwork radios to communities could be useful, but government funding to facilitate this is currently not available. Radio broadcasting time (6am-11pm) is problematic if warnings are needed at other times. If a cyclone is

imminent, radio companies keep broadcasting but this is not useful for tsunamis, earthquakes and other events that cannot be predicted.

The location of remote communities limits access in order to reduce challenges relating to warning dissemination. Time and funding constraints in terms of logistics (sea travel only to many areas, high costs of boat hire, fuel etc) affect the ability of all organisations to do outreach.

There is an issue in urban areas of people getting inaccurate information from unofficial sources and this causing panic amongst the population. Awareness raising on processes, information and access to official sources could be useful. With the improvement of telecommunication technology, dissemination of warnings via mobile phones is becoming an option. The NDMO is exploring opportunities in relation to this.

More accurate forecasts on rainfall and their dissemination are needed to improve warning of potential flood risks.

Awareness raising on warnings/warning signs and how to respond appropriately needs to be enhanced. Consultations with women's and grass roots organisations to identify communication outlets likely to reach high-risk groups of women and men, boys and girls should be considered.

The wealth of traditional knowledge on early warning signs and disaster preparedness should be documented and shared, particularly in urban areas where this knowledge has been eroded. The relevance and applicability of traditional knowledge in view of changing hazards due to the impacts of climate change will need to be analyzed.

## **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### **Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

### **Means of Verification:**

- \* No: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* No: Action plans addressing trans-boundary issues

### **Description:**

The Solomon Islands participates in the Regional DRM Platform. Annually a collection of meetings are convened that includes; Regional Disaster Managers meetings; Pacific DRM Partnership Network meetings; DRM meetings for Pacific CEO's of Finance/Planning and DM. The network facilitates regional co-operation and information sharing on DRM issues and has established the Pacific Framework for Action. In addition the Solomon Islands contributes information to, Pacific Disaster Net, an online Virtual Centre of Excellence for DRM in the Pacific Region. The web portal and database system is an information

resource for actors and stakeholders to research, collaborate on and improve information and knowledge management throughout the region.

The Solomon Islands are also part of the South West Pacific Tsunami EWS. This system is designed to collect seismic data from countries throughout the region in order to improve the quality of data available in the event of tsunami. Tsunami warnings are shared regionally through the Pacific Tsunami Warning Centre based in Hawaii. Cyclone warnings also follow regional procedures with clear responsibilities of information sharing with other countries.

The Melanesian Volcanological Network was established to reduce volcanic risk in Melanesia by providing a framework for the exchange and sharing of volcanological resources of Papua New Guinea, Solomon Islands and Vanuatu on a sub-regional basis. Regional co-operation on risk reduction with PNG and Vanuatu (NDMOs and Met services) is recognised as particularly important as these countries border the Solomon Islands.

#### **Context & Constraints:**

It is recognised that greater cross boundary co-operation in regards to legislation on land rights, ownership etc is required. Refugees and Internally Displaced Persons were placed at greater risk during the Bougainville crisis (shared territory between PNG and the Solomon Islands) due to a lack of coherent understanding on these issues. Similarly, populations residing in the Solomon Islands for generations, but originating from Kiribati, were particularly badly affected after being displaced following the 2007 tsunami in Gizo.

Despite a good level of regional information sharing existing, stakeholders involved in the multi-stakeholder workshop felt that more could be done to facilitate information dissemination of regional activities with in-country actors.

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## **Vanuatu** (in English)

### **Priority 2: Core indicator 1**

*National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.*

#### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

#### **Is there a national multi-hazard risk assessment available to inform planning and development decisions?**

No

#### **Means of Verification:**

- \* No: Multi-hazard risk assessment
- \* 0 % of schools and hospitals assessed
- \* 0 schools not safe from disasters (specify absolute number)
- \* No: Gender disaggregated vulnerability and capacity assessments
- \* No: Agreed national standards for multi hazard risk assessments

**Description:**

Some progress has been made in the area of hazard mapping and assessments (e.g. volcano hazard assessments in Gaua, Tanna, assistance with population mapping / vulnerability assessments), although more work is still needed in this area. There is also a need to move towards multi-hazard approaches, and to link hazard mapping with land use planning.

There is also some evidence that some government agencies and communities are now using this information to better inform their planning (e.g. Ministry of Infrastructure and Public Utilities is reportedly using weather forecasts to schedule road works and routine maintenance, copra and kava growers are using forecasts to inform planting).

Work has begun to develop a Pacific Catastrophe Risk Financing mechanism, including a regional GIS based Pacific Exposure Database. This initiative is expected to provide better information for vulnerability assessments, strengthen links with development partner financing, and improve risk sharing between public-private entities (with the aim of improving timely access to disaster funding and insurance). This is a World Bank initiative, which is being implemented in collaboration with Global Facility for Disaster Reduction and Recovery (GFDRR), Japan Policy and Human Resources Development Fund (PHRD), Australian Agency for International Development (AusAID), Asian Development Bank (ADB), AIR Worldwide, Secretariat of the Pacific Community Applied Geoscience and Technology Division (SOPAC), GNS New Zealand, Pacific Disaster Centre, and Pacific Islands Forum Secretariat (PIFS)

**Context & Constraints:**

There is a need to review the information systems currently used in Vanuatu with a view to identifying critical gaps in information (e.g. high priority hazard assessments) and to joining up / better integrating the information that is available. There is also a need to identify opportunities to better use available information to support forward planning across sectors.

Bringing together the task forces for climate change and DRR-DM may help to strengthen coordination and the adoption of a multi-hazard approach to reducing vulnerability.

**Priority 2: Core indicator 2**

*Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Are disaster losses systematically reported, monitored and analysed?**

Yes

**Means of Verification:**

\* Yes: Disaster loss database

\* No: Reports generated and used in planning

**Description:**

Vanuatu has made good progress to improve its information systems. Meteorology has strengthened its capacity to monitor a range of meteorological and other hazards, including:

> improved monitoring of rain fall through the installation of 28 rain gauges throughout the country (this helps with monitoring and predictions of drought, flood, and potential landslide risks).

> Better monitoring of the impacts of climate change and sea level rise (e.g. through the installation of tide gauges, measurement of sea temperatures etc). The following initiatives contributed to this progress: The South Pacific Sea Level and Climate Monitoring Project and Pacific Islands Climate Change Predication project (PICCP), with support from the Australian BOM. Achievements include the establishment of ENSO alert system (which informs industry, government agencies, academia and the public about the onset and status of La Niña and El Niño). Technical support is also being provided by the National Institute for Water and Atmospheric Research (New Zealand).

Geo-hazards are progressively strengthening monitoring of seismic and volcanic threats:

> Vanuatu now has real time monitoring of earthquakes and tsunami threats, and has established relationship with key international scientific agencies (e.g. Pacific Tsunami Warning Centre, Australian Bureau of Meteorology, GFZ, JMA, US National Weather Service).

> Permanent seismic monitoring stations have been established for three volcanoes, with temporary seismic stations established in Gaua and Ambae.

> There are plans to move towards real time monitoring of major volcanic threats (with donor support).

Meteorology and Geo-hazards have both established web sites to help inform the public about threats.

An historical database of disaster events and losses has been developed on a pilot basis (DESINVENTAR), with training provided in its use. This database, which captures data on past disasters, aims to help Vanuatu better plan for and respond to future disasters. Further updates of the database has been identified a priority,

All of these improvements to information systems are helping the Vanuatu government to better monitor hazards, inform the public and help communities better prepare for disasters.

### **Context & Constraints:**

Vanuatu is currently facing an increased threat from volcanic hazards with no real time volcano monitoring and only limited time series data on historic volcano behaviour. Although significant progress has been made to strengthen Vanuatu's DRR-DM information and systems, integration of these systems remains a major challenge. Many of the systems have been developed with support from a number of different technical agencies and donors. This has resulted in a patch work of different systems which are not always well integrated at national level (e.g. different GIS systems / information being developed with support from a wide a range external technical agencies, but information is not well integrated at national level). Intra-government coordination is also a challenge (e.g. the Vanuatu government's GIS is managed by the Ministry of Lands, but it is reportedly difficult for other government agencies to access / share information). The NAP proposes establishing a GIS user group (intended to help address some of these issues), but this is yet to be established.

Sustainability of some information systems has also been identified as a challenge (e.g. significant effort and investment has been made to establish DESINVENTAR, but the data is yet to be used to inform planning and there are currently no dedicated human resources available at national level to keep the database up to date). A dedicated information and data officer has been included in NDRMO's revised staffing structure for 2012, and updating the DESINVENTAR will be an important priority for the coming year.

### **Priority 2: Core indicator 3**

*Early warning systems are in place for all major hazards, with outreach to communities.*

### **Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

### **Do risk prone communities receive timely and understandable warnings of impending hazard events?**

Yes

#### **Means of Verification:**

- \* Yes: Early warnings acted on effectively
- \* Yes: Local level preparedness
- \* No: Communication systems and protocols
- \* No: Active involvement of media in early warning dissemination

#### **Description:**

Vanuatu has made good progress to strengthen its early warning capacity. Meteorology has strengthened its capacity to inform the public on a range of meteorological and other hazards, including:

- > provision of seven day weather forecasts
- > provision of tropical cyclone predictions, with three day outlook (recent improvements at national level mean that Vanuatu is no longer reliant on forecasts from Fiji).
- > Improved seasonal forecasting (i.e. predication of La Nina and El Nino events).

Meteorology is also working with Digicel to formalize arrangements to distribute timely SMS warnings for sudden onset events, such as tsunamis. SMS and radio warnings were broadcast for the last two tsunami warnings (in late 2009 and early 2010). Further work is planned to improve timeliness and accuracy of these warnings.

As regards Tsunami Early Warning, a national technical team was established to prepare a tsunami hazard map of Port Vila. The team comprises of geo-hazards, Port Vila municipality and the department of lands and survey. Baseline information on updated vector data is to be provided as input into hazard map. Since the lands department cannot share the information, it will take on the responsibility to create the hazard maps which will indicate areas that are high and low risk. However, at this time there are no standards in place yet for producing tsunami hazard maps to determine danger zones. Work is ongoing to look at topography and existing studies to determine inundation level to identify the risk. This will be the basis to develop evacuation maps and public awareness.

All of these improvements are helping the Vanuatu government to better inform the public and help communities better prepare for disasters.

#### **Context & Constraints:**

Vanuatu is currently facing an increased threat from volcanic hazards. The absence of real time volcano monitoring and limited time series data on historic volcano behaviour, limits the ability of Geo-hazards to provide timely and accurate warnings (e.g. the absence of real time and historical time series data on the Gaua volcano makes it much more difficult to predict when it would be prudent to move to a full-scale evacuation).

### **Priority 2: Core indicator 4**

*National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.*

**Level of Progress achieved:**

3 - Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Does your country participate in regional or sub-regional DRR programmes or projects?**

Yes

**Means of Verification:**

- \* Yes: Programmes and projects addressing trans-boundary issues
- \* Yes: Regional and sub-regional strategies and frameworks
- \* Yes: Regional or sub-regional monitoring and reporting mechanisms
- \* Yes: Action plans addressing trans-boundary issues

**Description:**

Vanuatu is exposed to a range of hazards that present trans-boundary risks, i.e. tropical cyclones, tsunamis, earthquakes, volcanoes, climate change, and pandemics. The need for regional cooperation is consequently widely acknowledged. Cooperation includes the collection, sharing and analysis of data for hazard and risk assessments which provides key inputs for determining suitable risk reduction options, including early warning.

Vanuatu has ongoing cooperation dealing with trans-boundary hazards and risks:

- For Cyclones: linkages with the RSMC Nadi Regional Tropical Cyclone Centre.
- For Earthquakes: linkages with the Global seismic network.
- For Tsunami: linkages with the Pacific Tsunami Warning Centre and participation in the Pacific Tsunami Capacity Assessment implemented by the Australian Bureau of Meteorology and SOPAC which identified the need to develop Tsunami Risk Maps, evacuation policy and plans, and to establish a Tsunami early warning system in a regional approach.
- For Climate change: linkages with regional monitoring efforts supported by SPREP, SPC, WWF.
- For Volcanoes: Member of the Melanesian Volcanological Network which established a tripartite relationship for the sharing of skills and resources for the preparedness and response to volcanoes. Vanuatu received support in 2009 from PNG when an expert from the Rabaul Volcano Observatory was made available to assist with the monitoring of the Ambae volcano.
- For Pandemic: agreement between SPC and WHO.

The above partnerships and collaboration are backed by a range of regional strategic frameworks and information exchange mechanisms, such as:

- The Pacific Plan and Kalibobo Road Map
- The Pacific Regional DM and DRR Framework of Action 2005 – 2015
- The Pacific Islands Framework for Action on Climate Change 2005 – 2015
- Pacific Health and Disability Action Plan (2002)
- Pacific Education Development Framework (PEDF) 2009-2015.

Vanuatu is also partner to a number of regional DRM initiatives, such as:

- The Pacific Risk Exposure Databases which is implemented by SOPAC, GNS New Zealand and the Pacific Disaster Centre with funding support from the World Bank and the Asian Development Bank. There is a need to compare the risks posed by each hazard in a standardized manner using potential impacts such as cost and casualties.
- The Pacific Humanitarian Team and Regional Cluster approach which is currently being interfaced with

the national institutional arrangements for response and preparedness in Vanuatu. The 2009 National Contingency Planning workshop was instrumental in moving this ahead.

- The AusAID NAP Facility which provides regional support administered through SOPAC to assist national implementation of the HFA and the Pacific Regional Framework for Action 2005-2015 through National Action Plans and priorities initiatives.
- The Pacific regional review of progress in implementing the HFA, the Regional DRM Framework for Action and the National Action Plans or DRM. The progress review process is technically assisted by UNISDR and SOPAC and financially assisted SOPAC in collaborative approach.

**Context & Constraints:**

Regional programmes and information exchange mechanisms provide for excellent opportunities and increase efficiency, especially in highly technical and specialized areas such as weather forecasting. It would be difficult, if not impossible, to fully replicate at national level in small island countries with limited capacities such as Vanuatu.

While regional initiatives uncover new initiatives and needs, they often do not build in sufficient follow up measures and technical assistance to ensure the long-term sustainability of what they initiate. For small and often under-resourced NDRMOs such as that in Vanuatu, it is a considerable challenge to provide the necessary in-country support to take full advantage of what is offered from these regional programmes.

A related concern has been the weak coordination of regional initiatives at national level resulting in high demands on staff.

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