

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

HFA Priority 2, core indicator 2.3:

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

Know the Risks and Take Action

Reporting period: 2009-2011
Country information as of 18 Aug 2011 (for internal use only)

This report compiles inputs by Hyogo Framework for Action (HFA) priority for action 2.3 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/framework/progress/>

An HFA Monitor update published by PreventionWeb

Africa

Algeria (in French)

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).

Botswana (in English)

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 futher 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.

Burundi (in French)

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.

Cape Verde (in Spanish)

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 didáticos, 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, 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.

Comoros (in French)

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.

Cote d'Ivoire (in French)

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.

Ghana (in English)**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.

Guinea-Bissau (in French)

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.

Kenya (in English)

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.

Lesotho (in English)

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.

Madagascar (in French)

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.

Malawi (in English)

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.

Mauritius (in English)

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.

Morocco (in French)**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.

Mozambique (in English)

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.

Nigeria (in English)

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.

Senegal (in French)

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.

Sierra Leone (in English)

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 don'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.

Tanzania, United Rep of (in English)

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.

Zambia (in English)

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.

Americas

Anguilla (in English)

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.

Antigua and Barbuda (in English)

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.

Argentina (in Spanish)

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 escaba información que llega a la comunidad, lo que indudablemente puede afectar su capacidad de respuesta.

Barbados (in English)

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.

Bolivia (in Spanish)

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

Brazil (in English)

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.

British Virgin Islands (in English)

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.

Canada (in English)

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.

Cayman Islands (in English)

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.

Chile (in Spanish)

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.
-

Colombia (in Spanish)

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.

Costa Rica (in Spanish)

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 desarrollon como sistemas de respuesta local, es decir, comunal.

Context & Constraints:

El reporte se limita a iniciativas desarrolladas por la CNE.

Cuba (in Spanish)

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

Dominican Republic (in Spanish)

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 desasocio 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 población respecto a los niveles de alerta.

Ecuador (in Spanish)

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; así 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 señalética 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.

El Salvador (in Spanish)

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.

Guatemala (in Spanish)

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 proyecto 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.

Honduras (in Spanish)

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.

Jamaica (in English)

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.

Mexico (in Spanish)

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.

Nicaragua (in Spanish)

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.

Panama (in Spanish)

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).

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).

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), Tuira, Chucunaque, Chiriquí Viejo, Quebro, Bayano. Sistema de Alerta Temprana de La Cuenca del Chucunaque, sistema de Alerta temprana Comunitario Rio Chiriqui 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.

Paraguay (in Spanish)

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.

Peru (in Spanish)

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 Cuenca.

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.

Saint Kitts and Nevis (in English)

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

Saint Lucia (in English)

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.

Turks and Caicos Islands (in English)

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 to 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 sought for a low cost alerting system.

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 sought for a low cost alerting system that can be built upon once the skeleton infrastructure is in place, allowing for the instant relaying of information once received by relevant authorities.

United States of America (in English)

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.

Venezuela, Bolivarian Rep of (in Spanish)

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.
-

Asia

Bangladesh (in English)

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 is 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 its multi-hazard warning. A river erosion prediction 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.

Brunei Darussalam (in English)

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:

-

Context & Constraints:

-

Georgia (in English)

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 – 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 “Geodynamical Hazards of High Dams” 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 – 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.

India (in English)

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.

Indonesia (in English)

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.

Japan (in English)**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.

Lao People's Democratic Republic (in English)

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 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.

Lebanon (in English)

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
-

Malaysia (in English)

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 in actual situation. In longer term, the National Slope Master Plan will be expanded to provide early warning system in landslide prone areas.

Maldives (in English)

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.

Mongolia (in English)

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.

Nepal (in English)

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.

Pakistan (in English)

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.

Sri Lanka (in English)

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

Syrian Arab Republic (in English)

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.

Thailand (in English)

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.

Yemen (in English)

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.

Europe

Armenia (in English)

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.

Bulgaria (in English)

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

Czech Republic (in English)

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.

Finland (in English)

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 (Luonnononnettomuuksien 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.

Germany (in English)

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 Ilplus) 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 ICPEP 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

UNU-EHS <http://www.ehs.unu.edu/>

BGR http://www.bgr.bund.de/cIn_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

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
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≤=2008072310000091609&aq=unwetterwarnung
DWD Special Users 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>

Italy (in English)

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.

Norway (in English)

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:

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Poland (in English)

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

Romania (in English)**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.

Sweden (in English)

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.

Switzerland (in English)

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.

The former Yugoslav Rep of Macedonia (in English)

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 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.

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.

Oceania

Australia (in English)

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).

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.

Cook Islands (in English)

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.

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.

Marshall Islands (in English)

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.

New Zealand (in English)

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, tsunami, 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.

Samoa (in English)

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.

Solomon Islands (in English)

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.

Vanuatu (in English)

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).
