

Compilation of National Progress Reports on the implementation of the Hyogo Framework for Action:

HFA Priority 2, core indicator 2.2:

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

Know the Risks and Take Action

Reporting period: 2007-2009

This document has been compiled from the national progress reports provided by 76 countries through the HFA Monitor.

Note that these extracts are provided for convenience only.

National HFA progress reports should be considered in their entirety and can be found at:

<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

Description:

Le classement qui paraît approprié pour le cas de l'Algérie est intermédiaire entre les niveaux 3 et 4. En effet, pour certains types de risques, il existe des systèmes élaborés pour l'évaluation du risque et l'archivage des données y afférentes, même si la diffusion des informations nécessaires reste insuffisante. A titre d'exemple, on peut citer, pour le risque inondations, l'existence et la gestion d'une banque de données hydro-climatologiques et la diffusion de bulletins et annuaires y afférents.

Par contre, pour d'autres types de risques l'évaluation est encore à des stades peu élaborés, avec un archivage inexistant ou peu consistant, et une absence de vulgarisation .

Context & Constraints:

Le défi principal réside dans la généralisation de l'évaluation, l'archivage et la vulgarisation pour tous les types de risques de catastrophes qui menacent le pays. Celle-ci ne pourra se concrétiser qu'avec la mise en œuvre des différents volets et mécanismes prévus par la loi 04-20.

Angola (in English)

Level of Progress achieved:

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

Description:

Atraves dos vários sectores, o Serviço Nacional de Protecção Civil dispõe de um mecanismo de monitoria que permite avaliação o grau de vulnerabilidade no país. As actividades desenvolvidas pelos diversos sectores são relatadas para o SNPC e depois canalizadas para os respectivos orgão de decisão.

Context & Constraints:

A coordenação multi sectorial existe no entanto estão em curso alguns acertos para o seu melhoramento.

Burkina Faso (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

Description:

Pour les secteurs de la Santé, de l' Agriculture, des Ressources animales et de l'Environnement (climat, faune ,flore et eaux...), les systèmes sont en place et fonctionnels.

Context & Constraints:

- Insuffisances des moyens pour la mise en oeuvre des programmes.

Burundi (in French)

Level of Progress achieved:

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

Description:

L' Institut Géographique du Burundi (IGEBU) existe et fonctionne depuis un certain temps

Context & Constraints:

Les équipements de l'IGEBU sont vétustes et on est obligé de passer par Nairobi pour avoir les données réelles

Cote d'Ivoire (in French)**Level of Progress achieved:**

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

Description:

Les différentes informations sur les risques et la vulnérabilité, lorsqu'elles existent sont disséminées dans les structures qui les collectent et ne sont pas archivées dans un système national de données environnementales qui permettent de les divulguer à temps voulu.

Context & Constraints:

Un des défis à relever au niveau national est la mise en place d'un véritable système de gestion des données environnementales existantes et à collecter (réseaux de mesures), comprenant les informations sur les risques et la vulnérabilité.

Egypt (in English)**Level of Progress achieved:**

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

Description:

Systems are being developed at sectoral level, to monitor, archive and disseminate data on key hazards and vulnerabilities (as earthquakes and flash floods). However, archiving and dissemination of data on key hazards at the national level is within the mandate of the NCCMDRR supported by the CMDRS/IDSC and relevant institutions. However, the system needs to be supported to enable timely dissemination of information to allow decision makers and communities to take effective action to reduce risk.

Ongoing efforts are exerted to build the first comprehensive database on areas at risk (hazards maps), but updating of the information is not yet considered. Problems remain with regards to quality and information resolution.

Context & Constraints:

Systems at local levels are to be considered and functioning. This will be subject to resources availability and decentralization. These systems are to be linked to the national system once established. Meanwhile, the existing sectoral system is to be enhanced.

Ghana (in English)**Level of Progress achieved:**

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

Description:

There are lead sectors or agencies to monitor, collect, collate and store data or information on relevant risks. Data especially on hydrometeorological and hydrological, etc risks and vulnerabilities are released on request. Available information or data are posted on the NADMO website: www.nadmo.org for both national and international publics.

With UNDP support hazards are being mapped to enhance monitoring and assessment for risk and vulnerability reduction

Context & Constraints:

Data/information are still considered confidential by many institutions and are not often published or even disseminated to other relevant sectors and institutions. Even, on request, much time is wasted due to the long and cumbersome processes involved in the release of data or information.

Record keeping of data or information is not widely practised. Therefore, it is difficult to get records for years back.

Kenya (in English)

Level of Progress achieved:

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

Description:

Information dissemination is easy.

Context & Constraints:

But lack of awareness campaign make locals ignorant on key hazards surrounding them.

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

Description:

Un outil d'évaluation initiale des dégâts suite au passage d'une catastrophe a été élaboré, testé et rendu disponible. Les communautés locales ont par ailleurs bénéficié d'un renforcement de compétences dans l'évaluation initiale des dégâts. Cet outil d'évaluation des dégâts se base sur des enquêtes physiques, sociales, économiques. Cette année, le pays, en collaboration avec le GFDRR, la Banque Mondiale et les Nations unies a lancé le processus d'évaluation des dommages et pertes selon la méthodologie DALA. Des outils de communication adaptés aux compétences et capacités locales telles les radios manivelle, le BLU, les drapeaux rouges pour cyclones, ... ont été élaborés, disséminés et renforcés pour permettre aux communautés de recevoir et de diffuser des informations à temps.

Context & Constraints:

Madagascar manque de ressources, vu l'immensité du pays. Certains matériels performants ne sont pas non plus adaptés à la situation de certaines parties de l'île comme les nombreuses communes isolées sans infrastructures électriques et enclavées.

Malawi (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

Description:

Some monitoring system is in place and data is being collected on social economic vulnerabilities of the country e.g the Malawi Vulnerability Assessment Committee(MVAC) within the Ministry of Economic

Planning and Development. The DoDMA maintains a disaster profile which records disasters that have occurred, impact of the disaster and action taken to assist those affected. The profile is being improved into a data base and the work will be completed in early May 2009.

Context & Constraints:

1. Commitment of members to activities of MVAC. MVAC is a multi sectoral committee with representation from government, NGOs and UN agencies. For the committee to undertake its activities efficiently, there is need for commitment from members to make themselves available when needed.

Mauritius [\(in English\)](#)

Level of Progress achieved:

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

Description:

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

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

Context & Constraints:

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

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

Description:

The National Directorate of Waters of the Ministry of Public Works and Housing is in a good pace to establish a full coverage of the major rivers basin with monitoring systems and in time information dissemination. The implementation of forecasting tools such as Telemetry (which is a system composed by 8 RTUs communicating over a VHF radio frequency to the control system at the ARA-Sul) in the Limpopo and Umbeluzi River Basins, the SADC Hycos in the Zambezi, Save and Maputo River Basins, the integrated Flood forecasting and early warning in the Limpopo River, the establishing of Remote Sensing analysis for rainfall estimation and the improved capacity of cyclone monitoring at the National Institute of Meteorology may all together be used to show great advances in Mozambique in relations to monitoring of Floods, Droughts and Cyclones, therefore contributing for disaster mitigation. The country has seventeen telemetric stations in the Limpopo Basin seven in Umbeluzi Basin 3 Hycos stations in the Zambezi, Maputo and Save Basins. The country has also about 300 working meteorological stations.

The capacity of the National Institute of Meteorology (INAM) is strengthened for cyclone monitoring and information dissemination is properly done by Government and private media, radios and Television and local community radios.

Seismological station are being upgraded and installed in the most seismic activities locations, such as Changalane (Maputo province), Massangena (Gaza) Manica (Manica Province), Lichinga (Niassa province) and national online receiver was placed in Maputo since 2007.

Context & Constraints:

It is hampered by human and financial resource limitations, especially on implementation of new

technologies. Information is also dispersed within several departments making continuity of recording and dissemination very difficult. Not all meteorological stations are in good working conditions and rainfall gages do not exist in many parts of the country. Lack of historical information record is a deep concern. The creation of a national information system and training of data base management staff must be priority in a short term.

Senegal (in French)

Level of Progress achieved:

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

Description:

Beaucoup de structures gèrent une base de données en matière de RRC, mais ne sont pas encore arrivées à mettre en commun leurs moyens dans le cadre d'une plateforme nationale de RRC.

Context & Constraints:

La collaboration entre les différents systèmes pourra être formalisée dans le cadre de la plateforme nationale de RRC.

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

Description:

There has been remarkable progress made in this sector. Hazards and vulnerabilities are monitor and information is sent to the communities to ensure measures are taken to limit the impacts. Hazard profile is continually being reviewed to include new vulnerabilities based on the changing times and circumstances. This information is shared in the disaster management committees nationwide which in turn disseminate the information to the people for an effective disaster management system.

Context & Constraints:

One of the major constraints is that of accessibility to some remote areas in the country. even though the information might be readily available,. Another setback is the absence of trained personnel in the rural areas. Maintaining/retaining trained and qualified volunteers in remote and underprivileged areas can be really tough

Swaziland (in English)

Level of Progress achieved:

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

Description:

Establishment of teh NDMA as the primary source of information. There will be an indformation and resource centre under the NDMA office

Context & Constraints:

capacity constraints. An information office will be recruited

Tanzania, United Rep of (in English)

Level of Progress achieved:

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

Description:

Institutional commitment attained, but achievements are neither comprehensive nor substantial
There is no formal centralized system for all hazards and/ or disasters data, but different systems for monitoring the main natural hazards exist. Tanzania Bureau of statistics collects and disseminates data on a more regular basis. Central and local government, Institutions, Agency and NGOs collect data relevant to their responsibilities, for example the Tanzania Meteorological Agency (TMA) provides information on weather and climate as part of early warning and drought risk monitoring. Ministry of agriculture through early warning unit provides information and data on pests, rainfall for crop production, crop status and other externalities that might affect food security. The Ministry of Health and Livestock has surveillance system to monitor human and animal epidemics.

Context & Constraints:

Improve coordination and developing data sharing protocols and mechanism

Togo (in French)**Level of Progress achieved:**

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

Description:

des systèmes ne sont pas encore mis en place pour vérifier cet indicateur. mais le ministère a un mensuel d'information, "journal l'Environnement" qui constitue le canal d'expression du département et particulièrement des données liées à la prévention des catastrophes. ces systèmes seront plus fonctionnels après les études sur l'évaluation des risques

Context & Constraints:

renforcement des capacités du secrétariat technique de la plate forme nationale.

Zambia (in English)**Level of Progress achieved:**

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

Description:

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

Context & Constraints:

The compilation of hazards in the districts has not been done yet as this is tied to the CVAA outputs.

Americas

Anguilla (in English)

Level of Progress achieved:

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

Description:

Will be improved with H/R/V assessment 2009

Programme in place to share risk information with large developers, implementation maturing;

need for better data for gis and more detatil H/R/V analysis;

need to run a storm surge and wave model for a north west hurricane not only the north east and south east paths.

TAOS in use for storm monitoring for 3rd season, it is maturing.

Context & Constraints:

time, staff and experience

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

Description:

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

Context & Constraints:

Revertir la situación de desconocimiento de la comunidad sobre las fuentes de obtención de datos que se encuentra ya disponible, será un reto.

Bolivia (in Spanish)

Level of Progress achieved:

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

Description:

Existe un buen nivel en la información y el manejo de base de datos por parte de instituciones como el SENAMHI con 70 Estaciones hidrometeorológicas automáticas satelitales con comunicación en tiempo real, disponibles para diseñar SAT, Hidrografía Naval cuenta con 40 estaciones hidrométricas en tiempo real comunicadas a través de radios. El IGM cuenta con Redes Geodesicas y de Nivelación; el sector salud también realiza controles epidemiológicos. Sin embargo, estos monitoreos no tienen una incidencia directa en las acciones y manejo en lo que es vulnerabilidad y amenazas.

Se puede destacar el papel de las organizaciones no gubernamentales en la difusión y sensibilización

sobre amenazas y vulnerabilidades.

Existe avances en relación al Sistema Andino para la Prevención y Atención de Desastres SIAPAD, cuyo nodo nacional en Bolivia se fundamenta en el SINAGER. Este Sistema está en fase de implementación y cuenta con el apoyo del Proyecto PREDECAN.

Se ha elaborado el mapa de vulnerabilidad sobre seguridad alimentaria en Bolivia, y evaluaciones de seguridad alimentaria en emergencias; acciones apoyadas por el PMA

Context & Constraints:

Para todas las redes de monitoreo, la principal limitación es el factor económico. Por este motivo, no se pueden habilitar nuevas estaciones o ampliar la cobertura de control.

Falta de coordinación interinstitucional entre organizaciones gubernamentales y no gubernamentales.

Es necesaria la vinculación del Sistema de Información Educativa en la plataforma del SINAGER (Nodo nacional del SIAPAD)

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

Description:

Public Information, Awareness and Education programme area is established and seeks to reduce disaster vulnerability, by increasing the public's awareness, understanding and capability to anticipate and cope with the extreme conditions of hazards and their disastrous effects. This is achieved mainly through public education programmes, and the dissemination of information to the public – including both accurate and timely hazard/disaster information, media campaigns on various disasters and ensuring that accurate and timely weather and seismic information is available to the public.

The Mitigation and Planning Programme Area is established and involves the assessment and mapping and modelling of various hazards such as hurricanes, earthquakes, flooding, and landslides, etc., which are likely to affect the Virgin Islands (UK). This information provides the public and private sectors with the ability to develop appropriate hazard mitigation strategies and measures in order to prevent or reduce the occurrence of a disaster in the Territory. Public sector agencies and individuals within the community are responsible for the implementation of hazard mitigation activities in order to protect life and property.

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.

Context & Constraints:

HVAs will be conducted and integrated further with the IA process. Moreover, these shall be strengthened further into the planning and development process. Capacity building and enhanced tools are envisioned for building code adherence and building authority enforcement.

It is recommended that a systematic application of Strategic Environmental Assessment (SEA) is implemented within the VI (UK) overarching government framework to help decision makers to achieve a number of important gains for achieving environmental protection objectives and advancing sustainable development. SEAs supports and improves development of policies, plans and programmes by providing assessment oriented inputs that highlight the relevant environmental and often also social and economic considerations. Cost benefit analysis of mitigation measures and risk reduction incentive schemes could be an be built in at the policy level through the application of an SEA within the context of development

Cayman Islands (in English)

Level of Progress achieved:

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

Description:

Storms. The Cayman Islands National Meteorological Service monitors and documents weather systems such as hurricanes, floods and severe storms affecting the Cayman Islands.

The country is considering acquisition of a Doppler radar device.

The Cayman Islands National Weather Service enjoys a good relationship with experts at the National Hurricane Centre in Miami and when the country is threatened by a tropical cyclone there is regular communication.

Earthquakes. Government has commissioned a seismic monitoring network, consisting of four state of the art seismograph stations. Two in Grand Cayman, one in Little Cayman and another on the Island of Cayman Brac.

Tsunamis. Plans are now in place for the establishment of a Caribbean-wide tsunami warning system and the Cayman Islands expect to play a part in that effort. The Caribbean tsunami warning system should be operational by 2010. A network of seismographs is being established for the Caribbean region and this is part of a global project being run by UNESCO's International Oceanographic Commission.

Pandemics / Epidemics. The Mosquito Research and Control Unit (MRCU) is responsible for monitoring and control of vectors. Neither Malaria, nor Dengue Fever are endemic to the Cayman Islands. MRCU issues regular public releases advising members of the public to clear all standing water around their houses and workplaces and to reduce areas for the mosquitoes to lay their larvae.

A plan under the auspices of the Public Health Department has been developed for Avian Influenza (H5N1) and a committee formed to oversee national contingency arrangements. The plan addresses the health sector response (surveillance, quarantine, treatment). Work still needs to be done on finalizing the national level implications and corresponding requirements in areas such as public awareness, security, containment and immigration.

Ministry of Agriculture is responsible for monitoring and control of pests and animal diseases.

Dissemination to the public is the responsibility of Government Information Services, with each organization being responsible for the technical content. Every Authority must maintain and keep records for a specified period as mandated by the Freedom of Information law and publishing requirements come into effect January 2009.

Context & Constraints:

Further work will be done on disseminating information about the threat to life posed by earthquakes, using the media, distributed printed material and public outreach into schools etc.

Additional public information could reduce the risk of a local pandemic occurring in the future. This might include additional information about the threats and symptoms of mosquito borne illnesses, the threat posed by travel to certain regional locations during outbreaks and strategies for preventing mosquito bites with mosquito nets and insect repellents. Public information about prophylactic drug treatments to reduce the risk of infection by the malaria parasite could be targeted at those traveling to countries with endemic malaria.

Colombia (in Spanish)

Level of Progress achieved:

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

Description:

En el país existen instituciones que por su carácter misional deben y administran cada una su sistema de información con sus respectivos sesgos misionales, como p.e Instituto Geográfico Agustín Codazzi, INGEOMINAS, IDEAM, OSSO, algunas CARs.

Administración de información: La gestión de Información se encuentra en un proceso de evolución el cual busca estandarizar los parámetros que actualmente se manejan con los internacionales, de igual forma se están optimizando los procesos de captura, procesamiento y difusión de los mismos, dado que en la actualidad son acciones que están incipientes. Es de resaltar que se cuenta con una normatividad para monitorear información espacial, ambiental, etc. que insertan la Gestión de Riesgo, pero aún requiere ajustes y actualización con tecnología de información avanzada, de igual forma es de aclarar que los sistemas de transferencia de datos aun tienen una característica de transmisión a una baja velocidad y capacidad para el intercambio o consulta de información temática. En conclusión no todos los sistemas están habilitados para seguir de cerca, archivar y diseminar datos correlacionados en especial aquellos correlacionados a la identificación de amenazas y vulnerabilidades.

Context & Constraints:

Existen muchas debilidades en la estandarización, generación, procesamiento y análisis de la información a nivel nacional, regional y municipal, lo anterior como consecuencia de una muy baja apropiación de recursos financieros, técnicos y tecnológicos. Aunado a lo anterior, se presentan dificultades en algunos Comités Departamentales y Comités municipales (CREPAD`s y Clopad`s) para la utilización de las herramientas de generación, consulta y transferencia de datos temáticos que fortalezcan los sistemas de información a todo nivel.

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

Description:

“Los sistemas están habilitados para seguir de cerca, archivar y diseminar datos sobre las principales amenazas y vulnerabilidades.”

Nivel alcanzado: 4

Existen institutos de investigación que se han especializado en el seguimiento de amenazas y eventos específicos, manteniéndose un registro histórico y continuo de los mismos, especialmente en el ámbito de las ciencias geológicas, ambientales y atmosféricas. Todos estos órganos cuentan con procedimientos para divulgar y diseminar información.

En el nivel local la tendencia es al trabajo por cuenca hidrográfica y especialmente para los eventos hidrometeorológicos, pero también se hace seguimiento a deslizamientos y volcanes. Se cuenta con 320 puestos de radio. 14 cuencas monitoreadas, 30 deslizamientos (grandes, moderados y pequeños), 5 volcanes.

Existe una práctica continua e institucionalizada de aplicación y uso de alertas que se ejecuta de manera eficiente, admitida y reconocida por la población.

Context & Constraints:

El seguimiento de amenazas que históricamente han desarrollado los institutos de investigación no se ha asumido bajo el concepto de alerta temprana y en muchos casos se adopta como un “monitoreo” del comportamiento de la amenaza.

Falta coordinación entre los institutos para la diseminación de información, pero principalmente para mantener la actualidad de la información que recibe la población afectable. En tal sentido, hay necesidad de fortalecer o mejorar la aplicación y el conocimiento de aspectos de comunicación pública, por parte de los organismos científicos.

Dominican Republic (in Spanish)

Level of Progress achieved:

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

Description:

Los sistemas de información están identificados a nivel nacional. Hay acuerdos entre instituciones para el uso de nuevas herramientas de información e iniciativa con algunas compañías para la instalación de sistemas de alerta mediante redes telefónicas

Context & Constraints:

Se necesita fortalecer las relaciones interinstitucionales en el manejo dinámico del riesgo

Se necesita una visión de conjunto.

Hacer uso eficiente de estas informaciones entre instituciones técnicas y científicas y las comunidades

Ecuador (in Spanish)

Level of Progress achieved:

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

Description:

•AVANCE

Política 6. Contar con un Sistema Nacional de Información para la Gestión del Riesgo

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Context & Constraints:

Recomendación:

- Fortalecimiento institucional a entidades técnico científicas.
 - Seguimiento de las publicaciones de todos los resultados que existen a nivel nacional.
 - Todas las instituciones, contribuyan al Sistema Nacional de información de Gestión de Riesgos. Implementar la política 6 de la Estrategia y sus líneas de trabajo,
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El Salvador (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

Description:

Los medios de comunicación han sido un soporte a este nivel de difusión.

Se cuenta a través del SNET con un monitoreo permanente de los 5 principales ríos del país y de los volcanes activos de El Salvador, así como de la actividad sísmica del mismo.

Adicionalmente, contamos con un sistema de protección civil que se activa, opera y difunde información a la población sobre las principales amenazas y vulnerabilidades, el cual ha venido mejorando significativamente durante los últimos años. Se difunde una advertencia general a las poblaciones más vulnerables. Hay que mencionar que aunque hay logros significativos en cuanto a la difusión del riesgo, no se conoce, el nivel de comprensión del público en cuanto a la misma.

Context & Constraints:

Es necesario focalizar amenazas y difusión de estudios los cuales deben estar enlazados con el elemento educativo.

Retroalimentar al sistema desde el nivel local, para mejorar el nivel de información. (Hay algunos esfuerzos en este sentido que se hace necesario ampliar)

Es necesario mejorar la información de vulnerabilidad y bajarla nivel local.

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

Description:

Data is collected at the national disaster office by way of damage assessment reports in post disaster events and incident logs. The damage assessment data includes data from other sectors and specialized agencies that monitor flood gauges, flood data and landslide data and inventories.

Pre impact data is also available through hazard maps prepared by water resources authority, Mines and geology, and the earthquake unit. Some of this work has been achieved through project funding.

GIS is being used more extensively for the before, during and after impact to generate pre-impact scenarios, archive and monitor data on impacts from hazards. Hazard data is also shared with other agencies using GIS.

Data on hazards and vulnerability are also disseminated from a documentation centre operated from a national level coupled with communication strategies, which are used to disseminate information on hazard vulnerability in an effort to place risk reduction issues on the national agenda.

Context & Constraints:

Challenges

- The GIS is used to store several pieces of information. However, data is not stored in a database format which allows for easier access and analysis.
- The reports are sometimes not as comprehensive as they ought to be because of the failure of some entities to submit detailed damage assessment information.
- The documentation centre needs to function as a complete repository of hazard vulnerability data but is affected by space constraints and financial incapacity to improve current technologies.
- Limited pre-impact baseline data exists

Recommendations

- Greater focus on improving technology and digitizing data as part of enhancing the capacity of the documentation centre.
- Expansion of database capability of GIS to allow for easier access and analysis as well as greater sharing of data and GIS expertise among agencies.

- Lobbying for the necessary resources from central government to build capacity at the National Disaster Office
 - Undertake the development of pre-impact databases by sector.
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Panama (in Spanish)

Level of Progress achieved:

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

Description:

Existen en el país sistemas habilitados para cumplir con este indicador como por ejemplo: en CATHALAC, el proceso de Divulgación de Información de diversas herramientas para la distribución y visualización de resultados de estudios, monitoreo continuo y pronóstico.

Actualmente carecemos de una base de datos, y métodos definidos para la captación de datos unificados en las instituciones que conforman la plataforma de nacional gestión de riesgos; mucho menos en las instituciones técnicas científicas de forma que el proceso sea simple y uniforme.

Cabe destacar que la información existente de amenazas es diseminada con la intención de que se tomen acciones oportunas para reducir el riesgo.

Ejemplos:

- Se han realizado giras técnicas para el levantamiento de la información que servirá de insumo para la elaboración de los mapas de riesgo de 10 comunidades de Bocas del Toro. De esto se entregó un informe de gira y está en proceso la elaboración de la programación para la entrega de los mapas, que servirán de respaldo para las tomas de decisiones futuras.
- Se han realizado un promedio de 25 informes mensuales de prevención hasta momento.

Existe la plataforma de trabajo y el seguimiento a las evaluaciones técnicas de prevención y mitigación de desastres; así como dar respuesta a la solicitud de criterio de impacto ambiental en un tiempo no mayor de 30 días.

Las instituciones mantienen sistemas de información temprana, en los cuales alertan a la comunidad sobre peligros potenciales en cuanto a la ocurrencia de eventos.

Se elaboró y se distribuyó un panfleto en donde se explica los niveles de Alerta a través de colores calibrados con las reglas milimétricas de ETESA.

Se cuenta con una biblioteca especializada, mapoteca y centro de documentación con fondos de revistas especializadas y libros en ciencias de la tierra y desastres.

Campañas educativas conjuntas con el Ministerio de Salud acerca de los efectos de la Radiación Ultravioleta en los seres humanos, con miras a reducir la incidencia en los cánceres de piel y cataratas.

Las instituciones en su mayoría cuentan con páginas de Internet donde mantienen informes, estudios y datos de relevancia para efecto de vulnerabilidades y de la realidad del país.

Ejemplo: Documentos disponibles en la pagina Web del Ministerio de Economía y Finanzas, para el acceso de cualquier persona:

- Situación Nutricional, Patrón de Consumo y Acceso a los Alimentos (diciembre de 2006).
- Percepciones de la Comunidad (agosto de 2006).

- Pobreza y Desigualdad en Panamá - La Equidad un Reto Impostergable (marzo de 2006).
- Mapas de la Pobreza (junio de 2005).
- Informe según niveles de Satisfacción de Necesidades Básicas (diciembre de 2004).
- Encuesta de Niveles de Vida 2003.
- Percepciones Colectivas de la Comunidad - junio 2000.
- Aspectos Más Sobresalientes de las ONG en Panamá - año 2000.
- Estado Nutricional de la Niñez Panameña Menor de 5 Años de Edad (septiembre de 2000).
- Distribución del Ingreso en Panamá (marzo de 2000).

Context & Constraints:

Existen datos que están disponibles para que las instancias decisorias y el público comprendan la exposición del país a varias amenazas y de esta forma reconozcan la realidad del país, al igual que sus vulnerabilidades sociales, económicas, ambientales y físicas.

La diseminación de la información es nuestra principal debilidad, la información esta disponible en el caso de ser buscada por el interesado. La información esta disponible lo que limita es la divulgación de la existencia de esa información.

Algunas Limitantes:

- Se requiere integrar y uniformar la forma de recolectar datos y es importante que la información sea posteriormente aterrizada al lenguaje común.
- Es necesaria la existencia de recursos económicos, de infraestructura y recurso humano, con lo cual se fortalezcan las iniciativas existentes.
- Es evidente la necesidad de dar mayor divulgación a las herramientas, procesos, proyectos e iniciativas existentes para que la optimización de su uso, y que el mismo sea mayor.
- Falta la sistematización de mecanismos de análisis de riesgos (amenazas y vulnerabilidad: probabilidades) como proceso dinámico).
- No todas las instituciones gubernamentales tienen acceso al Internet como una herramienta de intercambio o búsqueda de información; carecen del equipo y de la facilidad. Esto disminuye las probabilidades de que acceden a los datos existentes en la red.
- Faltan matrices, formatos o un criterio establecido para la obtención de datos, es necesaria hay una base de datos practica que sirva como referencia a la comunidad o a las personas que quisieran obtener información del tema.

Peru (in Spanish)

Level of Progress achieved:

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

Description:

Nivel de Progreso 3:

Se genera información en forma sistemática por parte de entidades técnico científicas y otras que aportan a la PAD.

- Se cuenta con un Comité sobre el Fenómeno del Niño, activo.
- Se cuenta con el Consejo Nacional de Ciencia y Tecnología el cual está sistematizando información

científica de 16 entidades nacionales

- Existen sistemas de información (a nivel de instituciones y otros), los cuales están en proceso de integración.
- Se ha fortalecido el SINPAD (Sistema de Información Nacional de Prevención y Atención de Desastres), incorporando el componente SIG
- Existe un Atlas de peligros naturales publicado, resultado de la articulación de la información proporcionada por las instituciones comprometidas.

Context & Constraints:

LIMITACIONES:

- Existe un compromiso parcial por parte de los gobiernos regionales y locales en la identificación de los peligros y análisis de las vulnerabilidades.
- Limitada disponibilidad de recursos humanos de la localidad que cuenten con capacitación y permanencia en la institución para asegurar la sostenibilidad de las acciones de prevención, preparación (gobiernos regionales y locales).

RECOMENDACIONES:

- Propiciar la formación de recursos humanos calificados de la localidad y su continuidad en la prestación de su servicio a fin de garantizar la sostenibilidad de las políticas.
-

Saint Lucia (in English)

Level of Progress achieved:

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

Description:

Systems are in place for monitoring Weather Systems. The Saint Lucia Met Service provides 24 hour weather forecasting service and is a member of the Caribbean Met. Organization. The US National Hurricane Center provides longer term Hurricane forecasting support to the region. The Seismic Monitoring Unit based at the University of the West Indies in Trinidad monitors seismic activity (Earthquake & Volcanoes) in Saint Lucia. There are 7 seismic monitoring sensors on the island. Mechanisms for establishing a Tsunami Early Warning System are currently being addressed on a regional level. Currently there exists a number of wave monitoring sensors within Saint Lucian territorial waters some of which are owned by foreign Governments. Information from these sensors all feed into the Global Tsunami Monitoring Network. National Focal Points have been identified and efforts are ongoing for establishing community level warning mechanisms, which should be completed soon.

Context & Constraints:

Mechanisms for the systemic research, recording and analysis of the hazards which have impacted Saint Lucia and the impacts of these hazards need to be established.

Effort should be made to encourage Saint Lucian graduate and under-graduate students to undertake research focused on disaster mitigation, response and preparedness.

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

Description:

Under the Stafford Act and other legislative mandates, responsibility for monitoring and issuing alerts for

individual hazards is delegated to specific federal agencies. Significant capabilities exist for monitoring networks, data archiving and rapid dissemination to provide situational awareness for emergency responders and the public at large. Additional investments have been identified in the Grand Challenges for Disaster Reduction implementation plans developed by the National Science and Technology Council's interagency Subcommittee on Disaster Reduction. These plans are available at <http://www.sdr.gov>.

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

Description:

Existen instituciones en el ámbito científico y académico que evalúan la información de amenazas, vulnerabilidades o riesgo. Sin embargo los resultados de dichas evaluaciones no son conocidos por todos los actores sociales (tomadores de decisión, instituciones y público en general) ya que no existen mecanismos sistematizados para su difusión.

En el sector salud existen metodologías para la recopilación de data de características estructurales y funcionales, mapas de vulnerabilidad y riesgo de todos y cada uno de los centros asistenciales en el país. Aun cuando existen deficiencias, se esta trabajando en resolver y asignar pasos específicos y responsabilidades para el análisis y resultados de dicha información. Sin embargo, no se ha establecido el proceso de sistematización de la información.

La Dirección Nacional de Protección Civil, avanza a través de la activación del proyecto CENAPRAD que será el Centro Nacional de Prevención y Atención de Desastres, I permitirá la recolección de toda la información relacionadas con amenazas y vulnerabilidades, a través de una plataforma tecnológica que articulará a todos los componentes del Sistemas Nacional de Protección Civil y Administración de Desastres previsto como un marco nacional. El CENAPRAD contará con una gran base de datos para visualizar las zonas de riesgo a nivel nacional y disponible a todos los actores claves con las orientaciones necesarias para la RRD.

Actualmente el CENAPRAD ha avanzado en la creación de la Red de Biblioteca Virtuales para la Prevención y Atención de Desastres (Red BiVaPaD), el Sistema de Inventarios de Desastres (DesInventar) y el Sistema de Información Geográfica (SIG) que se encuentran disponibles a través de la página web de la institución.

El Ministerio para el Poder Popular para el Ambiente, esta diseñando una plataforma SIG donde se plasmará todo el plan de ordenación territorial, los planes de ordenamiento y reglamentos de uso de las Áreas Bajo Régimen de Administración Especial (ABRAE), y las principales actividades humanas asociadas al desarrollo que representan amenaza para las presentes y futuras generaciones, con el fin de registrar los posibles cambios o tendencias en el ambiente y los recursos naturales.

Context & Constraints:

Poner a la disposición de las instancias decisorias y demás actores sociales (instituciones públicas y privadas y público en general) toda la información recopilada por los sistemas habilitados sobre las principales amenazas y vulnerabilidades, a través de una plataforma tecnológica y de manera oportuna y eficaz.

Implementar mecanismos para la recopilación, seguimiento y evaluación de información referente a las principales amenazas y vulnerabilidades.

Sintetizar y procurar la diseminación de información en materia de RRD de manera sencilla y de fácil entendimiento, para hacerla permeable ante las instancias decisorias y el público en general.

Mejorar los procesos administrativos, en la etapa de transmisión de información a las instancias de alto nivel, en materia de amenazas y vulnerabilidades en todo el territorio nacional.

Asia

Bahrain [\(in English\)](#)

Level of Progress achieved:

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

Description:

- Individual Ministries and organisations do collect and maintain data on risks. However, follow up action is not properly coordinated or passed on to all as required.
- The new legislation will ensure that such data is shared and used in the National interest.
- Again NCDM will be responsible for coordination and ensuring success in this area.

Context & Constraints:

- Currently sharing of information is not systematic and the primary challenge is to ensure that all this disparate data is brought together and prioritised for further action.
 - Once this is achieved National Policies and Programmes will follow.
-

Bangladesh [\(in English\)](#)

Level of Progress achieved:

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

Description:

Systems have progressively evolved to monitor, archive and disseminate key hazard information. At the same time, limited progress is made in designing indicator, data collection and analysis of vulnerability, though specific aspect exists such as food related vulnerability and poverty monitoring, including location, specification on base line poverty for better understanding the coping capacity. An ongoing project led by BBS/World Bank/WFP is updating poverty maps, which would be used as one input for risk assessment at pre-crisis situation. By the reporting period, significant amount of research-based information generated on vulnerability of number of high risk districts by GoB and NGOs, which can be a basis for a systematic monitoring vulnerability. Early warning dissemination has considerably been improved and further attention is required for wider dissemination at community level.

Context & Constraints:

Vulnerability as an important element in disaster management is increasingly been recognised for practice in recent time in Bangladesh. A national system remains underdeveloped to monitor vulnerability to different hazards. However, much of the information needed for monitoring exist with different agencies often on different websites.

There is a current effort by DMB to create a portal website through the DMIC to centralize this information, focused on hazard and disasters. DMB/DMIC not yet achieved in delivering information. Whilst it should be easily accessible through the internet, there must also be a system for the local level planners (DMCs) to access that information base who do not have internet facilities.

Cambodia [\(in English\)](#)

Level of Progress achieved:

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

Description:

There is some political commitment to collect and archive the national and local risk, multi-hazard data, vulnerability information, but there has not been a standardized system to collect, maintain, update and utilize the hazard, vulnerability data and information properly. In general, the hazard data and vulnerability information is collected individually by national authorities and partner agencies to serve for their purposes respectively, for instance, the disaster risk reduction partner agencies, who is responsible to implement the disaster risk reduction measures at local levels, they usually conduct hazard, vulnerability and capacity assessment (HVCA) to collect information of hazards, vulnerabilities and capacities for formulating local disaster preparedness, mitigation and prevention plan, while local authorities are engaged in the process of assessment. In addition to this, most development agencies usually conduct the surveys or assessment to collect the relevant information or other references to design and implement the development plan, but the significant challenges and constrains it does not have mechanism to maintain, update, utilize and disseminate the data or information properly.

Context & Constraints:

In general, there has been some critical constrains and challenges encountering by the country, national authorities and partner agencies in Cambodia, including:

- Inappropriate mechanisms to collect, maintain, update and utilize the data and information of hazards, vulnerabilities and other relevant information
- Inadequate human resources and equipments for maintaining and updating data and information, due to the issues have not been considered as the top priorities
- Limited capacity and knowledge on disaster risk reduction while the national and local authorities consider that emergency relief is more important than risk reduction, preparedness, prevention and mitigation.

Recommendation to Overcome:

To ensure the regular and periodic development, update, collection and improved dissemination of statistical information of hazards and vulnerabilities to decision-makers, general public and communities, recommended suggestions will be considered to address by national and sub-national levels:

- Appropriate mechanisms to develop, update, collect, maintain and dissemination of statistical information of hazards, vulnerabilities and disaster risk should consider as one of the top priorities of national and sub-national levels
- Human resources and equipments to effectively serve for development, updating, record, analysis, maintaining and disseminating data and information of hazards, vulnerabilities and disaster risk should be implemented in the national context and needs.

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

Description:

Technical organizations have been identified by Government of India to monitor, archive and disseminate data on key hazards and other related informations. India Meteorological Department (IMD) is responsible for monitoring and disseminating cyclone related informations and early warning from the Area Cyclone Warning Centres located across the country. IMD also monitors and archives the database of significant earthquakes. The National Seismological Data Centre has been established at IMD to access real time wave form data from the field stations and systematically archive it. Geological Survey of India (GSI) has been bestowed the responsibility to provide all informations relating to landslide hazards. An inventory of

about 1500 landslides has been generated by GSI and landslide hazard zonation on macro scale (1:25000/50,000) has been done to classify the landslide prone hilly terrain into different zones according to their degree of susceptibility. GSI also provides seismo-tectonic informations and has prepared the Seismo-Tectonic Atlas for India which provides detailed geological and tectonic data. Central Water Commission (CWC) is responsible for providing flood forecast on all major flood prone rivers and inflow forecasts for selected important reservoirs. The commission has prepared an Integrated Hydrological Data Book which provides information on the salient features of the major river basins in India, number of hydrological observations sites at different basins, sitewise annual, monsoon, and non monsoon flow of water in each basin etc. The National Flood Atlas has also been prepared by the commission. Survey of India (Department of Science & Technology) has set up the National Spatial Data Infrastructure (NSDI) to collect, compile, analyze and prepare value-added maps for use by various agencies in the field of disaster management, natural resource management and industrial applications. One of the objectives of NSDI is to work towards interoperability of data and information-sharing protocols, which will facilitate effective policy analyses and informed decision making. Department of Space, Government of India is implementing the Disaster Management Support Programme which aims at creating digital database at appropriate scales for hazard zonation, damage assessment and strengthening the communication networks for addressing realtime information transfer needs. Under this programme a Decision Support Centre (DSC) has been opened up at National Remote Sensing Agency in Hyderabad which operates INFRAS (Indian Forest Fire Response and Assessment System) to carry out active forest fire monitoring and assessment of burnt area and ecological damage. Ministry of Agriculture has set up the National Agricultural Drought Assessment and Monitoring System (NADAMS) to provide agricultural drought informations at state district and sub district level. Recently Indian Space Research Organization (ISRO) has launched the first all weather spy satellite. The Polar Satellite Launch Vehicle (PLSV C12) comprises of Radar Imaging Satellite (RISAT 2) and Educational Satellite Anusat and has all-weather capability to take images of the Earth beneficial in mapping and managing natural disasters, such as floods and landslides.

Context & Constraints:

Although the database on key natural hazards is available there is limited capacity in loss modeling and analyzing the vulnerabilities including the socio-economic parameters. Significant investment in research is required to develop appropriate methodologies for risk, vulnerability, damage and loss assessment. There is also a need to strengthen the data sharing protocols and mechanisms at national and sub national level to enhance the accessibility and dissemination of key hazard data.

Indonesia (in English)

Level of Progress achieved:

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

Description:

At the national level, disaster monitoring system has already in place and being used by the sectoral agencies/ministries. The standard data format has also been agreed by 12 relevant ministries and agencies.

The archive system and dissemination of hazard data for flood, volcano, landslide, earthquake and other hazards are done by the individual responsible sectoral agencies/ministries. However, although the hazard data have been available, its use and utilization at the local level has not been optimal, because the information dissemination system has not been sufficiently developed. For example, the Badan Meteorologi, Klimatologi dan Geofisika (BMKG or Agency for Meteorology, Climatology and Geophysics) issues a warning of possible rainfall with high intensity and long duration for a certain area that is indicated as prone to landslide. If the warning reaches the intended government, which does not have functional warning system dissemination yet, there is no way to disseminate the information to the communities at risk. Moreover, since the collection, archive and dissemination of hazard data has often been done also by

each individual sectoral office, when the coordination between these sectoral offices is weak, it is most likely that the hazard data cannot be utilized optimally by parties in need of these data.

Vulnerability data such as social, economic, environmental and physical vulnerabilities are still insubstantial, in terms of the collection, archive and dissemination.

Context & Constraints:

The geographical condition of Indonesia which consists of islands that are scattered in a vast area, poses quite a challenge for an accurate system to monitor disaster. Moreover, the limited number of instruments available to conduct the monitoring will further hinder this effort.

When hazard data is available and it needs to be disseminated to the communities at risk, often there will be other problems such as the wide distribution of the population, the limited infrastructure and the limited communication/telecommunication networks available. To address these challenges, coordination is needed to strengthen the instrument systems, standardize the data format and develop networks for sharing data and information to increase the usefulness of the data. Also, to prevent overlapping of information, the monitoring management needs to be enhanced and hazard data and information need to be centralized and managed by BNPB.

Considering the many data and information held at the different agencies/organizations, the BNPB has developed a national disaster database called the DIBI (Data dan Informasi Bencana Indonesia or Indonesian Disaster Data and Information). It is expected that a standardized and user-friendly database could be established and accessed by the public.

When disaster risk reduction has already been mainstreamed into development plans, regions facing limitations in terms of telecommunication network could give priority to the development of infrastructure to optimize hazard monitoring and disseminate the information to communities at risk. Involvement of the media, including TV/Radio, needs to be enhanced to help in information dissemination.

Iran, Islamic Rep of (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

Description:

Over the last few decades, the importance of effective management of information has been recognized in the disaster management sector. The Islamic Republic of Iran is establishing disaster management information system for effective management of disaster. Applications of these systems range from emergency response planning in short range early warning to long range mitigation and prevention planning.

It is evident that accurate and relevant information could significantly reduce the loss of life and financial costs of the disaster risks. Effective disaster risk management depends upon a series of related actions and the means to engage the informed participation of all stakeholders. The exchange of information and communication practices plays a key role in the realization of these activities. Data availability is crucial for ongoing research, to monitor hazards and for assessing risks. Information describes working conditions, provides reference material and allows access to resources. Rapid and widespread developments in modern communications record and disseminate the value of experience, convey professional knowledge, and contribute to decision-making processes. Integrating new developments in information management with established and more traditional methods help to create a much better understanding about hazards and risk at all levels of responsibility through public awareness programmes. Effective information

management and communication about disaster risk reduction is conveyed through:

- An awareness of current issues of information management;
- An appreciation of initiatives around the world;
- Selected national information programmes;
- Technical information, experience about different hazards;
- Using cyberspace to discuss disaster risk reduction.

Critical analysis and assessment of the implications of the occurrence of natural or man-made hazards need information comprising both spatial and non-spatial related to factors influencing the hazards. If such information is available, it would be immensely useful in:

1. Identification of the processes responsible for the hazards and the natural resources and socio-economic parameters associated with the process;
2. Planning appropriate preventive measures/preparedness
3. Assessing damage caused by hazards and planning appropriate mitigation measures.

With the advent of Satellite Remote Sensing and GIS technology, the information generation related to earth surface has become easier in terms of database generation, storage, retrieval and data analysis. Further, creation of computerized database with Net-working facilities has added a new dimension to the dissemination of information, free flow of data and information exchange for speedy implementation of action plans and their monitoring.

The computerized data constitutes a comprehensive digital database. The database contains information about various resources fields such as land, water, vegetation and socio-economic situation, which can be potentially tapped as per needs to create information system such as Land Information System (LIS), Water Information System (WIS), Forest Information System (FIS) and Disaster Management Information System (DMIS)... Thus a digital base generated under GIS environment can find applications in various fields related to natural resources viz. land, water, vegetation / forest, minerals, urban and rural development and specific area necessitating management of natural / anthropogenic hazards, development and management of facilities, transport, etc.

This database under the GIS environment has the following advantages with reference to hazards/calamities:

1. Assessment of the situation through integrated analysis;
2. Implication of hazards in terms of risks and planning;
3. Spatial modeling, querying and map creation for efficient and effective implementation of Response Action System (RAS);
4. Simulation of models and visualization of varying scenarios of hazards.

Disaster Management Information System (DMIS)

Having a digital database under GIS environment is oriented towards providing information for decision

makers and encompasses information on natural resources. The integration of these data sets would aid in decision making process for systematic planning and management of resources as well as disaster situations.

A wide variety of maps are required in the study of hazards. The maps generated would furnish information on political boundaries, transport network, settlements and natural resources set up on which the spatial aspects of hazards can be represented. These maps furnish basic location information concerning hazards with thematic support maps such as tectonic features, geological features, landforms, drainage, land use / land cover and soils. The information provided by the thematic maps are as follows:

1. Geological maps help to identify the earth materials, geological hazards (e.g. seismic landslides,.) and river courses;
2. Geomorphology maps are helpful in creating an integrated picture of the natural land surfaces and its hazards (erosion, floods, landslides, subsidence and so on). Those maps form a part of a wider Endeavour to understand the sensitiveness of geomorphologic processes to human interferences and the risks associated with development and settlements of hazardous sites.
3. Soil maps depict the variation and changes in soil characteristics. Specialized pedagogical maps with collateral data enable area specific prediction such as landslides and mass washing, epidemic surveillance of soil borne diseases etc. They also help in providing information on drainage, water logging and erosion susceptibility.
4. Land use / land cover maps depict the land use pattern such as animal, forest, scrub land, etc. These maps can be used for assessing the extent of damage as a consequence of hazards / disasters and valuation and also identifies the areas prone to hazards like floods, forest and fires.
5. In addition to the above, many other types of thematic maps that have direct or indirect bearing to hazards would also form a part of the RIS.

The socio-economic and infrastructure data that reside in the database would be useful in the analyses of growth trends, demographic situations, the consequences of hazards depending on the demographic pattern, economic profiles, infrastructure status, communication networks, and linkages and so on. Recognizing the utility of Remote Sensing and Geographic Information System (GIS) in data collection, formatting storage, manipulation, transmission, updating analysis and query development and network/communication linkages, in the Islamic Republic of Iran, IRIMO, developed a comprehensive Disaster Management Information System (DMIS) to meet the following objectives:

1. To create digital database comprising of both spatial and non-spatial data for identifying disaster prone areas;
2. To assess disaster situation through integrated analysis;
3. To organize response emergency operation through better information flow;
4. To utilize the GIS data base for designing and implementing the mitigation and preparedness measure;
5. To derive additional benefits of utilizing the resources data base for developing planning at the district/region and state level.

The primary objective is to carry out integrated analysis of spatial and non-spatial data and generation of hazard maps relevant to the districts in Iran such as drought, floods epidemics, earthquakes, accidents, industrial hazards, fire, and cyclones. The created data base will be immensely useful in the development

of Vulnerability Analysis System (VAS) and Response / Action Plan System (RAS). Disaster information user needs very greatly. The number of interested people, educational institutions, organizations and local community users are growing, as are relevant websites, networks, and multidisciplinary and professional exchanges. Some users require highly processed data, while for others raw data is more useful. In any case, the importance of adequate training, and an appreciation of the quality of the data, for any user of disaster information is clear. This information is disseminated in two methods; such as; public and special. Main users of this information are the Ministry of Power, Ministry of Agriculture and the Meteorological Organization. A particularly valuable role of private organizations is the dissemination of disaster information, especially the delivery of such information to the general public to minimize losses.

Context & Constraints:

1. To create digital database comprising of both spatial and non-spatial data for identifying disaster prone areas;
 2. To assess disaster situation through integrated analysis;
 3. To organize response emergency operation through better information flow;
 4. To utilize the GIS data base for designing and implementing the mitigation and preparedness measure;
 5. To derive additional benefits of utilizing the resources data base for developing planning at the district/region and state level
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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

Description:

The observation, analysis and dissemination systems are in place for data on climate-related hazard, earthquake and tsunami, volcanic eruption, and river-related hazard covering for all of Japan's national territory. They help to grasp the situation of the disaster early on and promote information sharing among relevant organizations, thereby enabling quick and appropriate decision-making for emergency response operations.

Further, the national government has been currently developing Disaster Information Sharing Platform, a common information sharing system with a standardized information format, where various disaster information provided by ministries and agencies, local governments, relevant organizations and residents, can be posted and freely accessed by all.

Context & Constraints:

Intensive use of urban space such as enhancement of underground space and increase of living areas below sea level, and high-rise buildings, brought us unprecedented vulnerabilities and risks. The aspects should be further understood by the public to take effective action.

Kazakhstan (in English)

Level of Progress achieved:

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

Description:

The work over National Atlas and Integrated Data Base on ES risk assessment and direction by data base using geoinformation technology. The Institute of Geography has been developed an atlas concept, its

structure and content, a vector basis of subject maps, authoring maps and information are also collected (91 maps totally).

The Institute of Seismology of the Ministry of Education and Science has been developed several programs as on fundamental and applied research of regularities of modern geodynamic and seismic processes, developing of an automatic system for operative seismic notice for population, developing of seismic zoning maps of cities or other large communities, establishment of modern seismic stations in dangerous areas.

The Passports have been formed for areas of landslide, mudflow and avalanche with its population, possible negative sequences. There is a permanent air and land monitoring for these areas.

At present in cooperation with regional Akimats, Astana and Almaty the work on a passport formation is finalizing.

Context & Constraints:

n/a

Korea, Rep of (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

Description:

Using IT and communication infrastructures, it is possible to disseminate disaster information to the people rapidly and efficiently.

Since May 2005, with the support from the private telecommunication companies, real-time disaster information can be disseminated to more than 30 million citizens, if necessary, by so-called Cell Broadcasting Service.

Also, since August 2007, DMB has been recognized as a new media that can be utilized to deliver disaster information.

To monitor flash flood in mountainous area and give early warning in downstream, automated rainfall warning systems are established in national parks and other attractive gorges.

Context & Constraints:

The Korean government is investing more money to utilize information technology for disaster monitoring and information dissemination.

More integrated system using IT will be necessary to cope with emerging risks in the future.

Kyrgyzstan (in English)

Level of Progress achieved:

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

Description:

No information provided by the government

Context & Constraints:

No information provided by the government

Lao People's Democratic Republic (in English)

Level of Progress achieved:

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

Description:

The NDMO has recorded disaster information, particularly flood impact data since 1966, while flood information has been standardized since 2000. Most information is of provincial and district level such as the number of affected provinces, district and villages, number of population affected disaggregated by gender, number of production areas and livestock affected, etc.

The NDMO developed disaster database (2000 to 2005) and is further improving the system. The NDMO is also planning to develop a standard disaster data collection format with line agencies concerned at the national level. The NDMO has not conducted any community based data survey at the village level, however, they cooperated with NGOs partners to implement a project called 'Disaster Risk Reduction and Community Based Disaster Management' in villages prone to flood and drought.

The Lao Red Cross (LRC) is an organization working in the field of disaster preparedness and relief for disaster victims, particularly the victims from flood. Every year LRC coordinates and receives information on disaster damages from Red Cross Provincial Branches by using their own disaster damage and need assessment format. Currently, LRC is implementing a project called 'Community Based Disaster Preparedness Program (2007 - 2011) in 5 flood and drought prone villages in Hinboun district of Khammoaune and Mahaxai district of Savannakhet province. Community based data survey were conducted in the 5 target villages in the form of Hazard, Vulnerability and Capacity Assessment. Participatory Rural Appraisal tools have been used for gathering and analyzing information. Village hazard map will show all hazards, particularly flood occurring in villages and element at risk such as housing, roads, production areas, community and other infrastructures, etc. Other tools such as livelihood analysis, problem trees, seasonal calendar, and history profile, are also utilized.

Context & Constraints:

Due to financial constraints, the NDMO lacks the human and information management capacities to meet the requirements to put systems in place for a comprehensive monitoring and dissemination of hazard and vulnerability information.

Maldives (in English)

Level of Progress achieved:

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

Description:

"DesInventar" which is a conceptual and methodological inventory system about disasters has been initiated. Simultaneously Maldives Disaster Reduction Network was also initiated. Sustainable monitoring and archiving seems to be a constraint due to adhoc methods of data collection. Data dissemination has been carried out by the Meteorological Department when needed or requested for.

Context & Constraints:

Maintaining monitoring system for the country which is widely dispersed is an uphill task. Lack of resources and systems not in place add to the constraints.

Lots of resources need to be allocated to establish a dedicated system in the country.

Nepal (in English)

Level of Progress achieved:

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

Description:

Few agencies at the central and district levels regularly publish and disseminate disaster related information. However, transparent and effective systems to monitor and archive of disaster related data are still to be institutionalized. Similarly, as of now the focus to collect information at any level is only limited to any disaster occurrence or post disaster situation.

Context & Constraints:

Key Contextual Challenges:

Disaster related information collected and disseminated by different agencies doesn't tally each other. The data collection formats are different for different agencies, the collection level is different, disaggregated information are not available at all levels. Manipulation of information is also a challenge, etc.

Some Recommendations:

In normal time, disaster related agencies can work together to develop information collection formats, software, pre-test, etc. Government has developed a Disaster Management Information System (DMIS) in early 2000s, before Desinventar and was in practice in six districts. This DMIS software can be updated and circulated widely for use at all levels.

Pakistan (in English)

Level of Progress achieved:

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

Description:

With regard to the systems of monitoring of hazards and archiving and dissemination of data on hazards and vulnerabilities, Pakistan can be ranked at level two. Although, Pakistan has a fairly reasonable system of collecting, archiving and disseminate data on hydro-meteorological hazards through the Pakistan Meteorological Department, WAPDA and Federal Flood Commission but the same needs to be streamlined to ensure timely dissemination of data/information to the communities. However, a national comprehensive system needs to be put in place to monitor, archive and disseminate data encompassing all hazards and supported by a comprehensive compatible IT infrastructure. The completion of the National Composite Risk Assessment Exercise alongwith development of compatible IT infrastructure, would allow Pakistan to develop a system for monitoring of hazards and efficient dissemination of data for effective disaster management.

Context & Constraints:

The major challenge being the lack of local capacities on account of expert human resources and application of modern technology to develop a comprehensive system for monitoring, archiving data and disseminating information down to the community level. The huge investment on account of time and resources is required to develop the compatible IT infrastructures and human resources. However, the resource scarcity being faced by the Government is a major stumbling block in implementing the national policies and strategies on this account.

Philippines (in English)

Level of Progress achieved:

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

Description:

While the need for a database information system for key hazards and vulnerabilities is recognized, there is no coherent strategy towards putting up such a system.

The OCD monitors, records, and archives disaster information such as casualties, population affected, damages (houses and agricultural, infrastructure and private property) and total cost of assistance. Data storage problems are met occasionally.

Except in those areas where projects such as READY are in progress, information on hazards and vulnerabilities are not available in most LGUs. No inventory of previous disaster events has been made at the local level leading to dependence only on oral history. Planning tools available to LGUs do not apply hazard, risk and vulnerability data to spatial information using GIS. LGUs are not technically equipped to incorporate disaster planning into planning and information systems that may be available. Several hazard prone provinces not covered by READY and mapping projects, lag behind in terms of developing a system to collate and organize data required of risk assessment.

Context & Constraints:

LGUs must be enabled to generate data on disasters and their impacts. On the other hand, local residents should also be mobilized and enabled to provide ground truth data on risks and vulnerabilities. Some of the techniques are already being employed by certain projects but are not fully utilized to generate a more permanent database for communities and linked to the planning information of LGUs. Most LGUs are not equipped with the capability to collect and store planning data and information such as population statistics. Current planning tools promoted by the DILG could include disaster as a parameter. In this connection, LGU planning officers must be trained to integrate DRR into development planning.

Many stakeholders perceive the need for an integrated information system. An inventory of past disaster events and existing hazards and vulnerability information systems should be done to provide direction and support decision-making. Based on target users, an appropriate information system may be designed.

Singapore (in English)

Level of Progress achieved:

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

Description:

The National Environment Agency (NEA) provides weather surveillance and multi-hazard warning services on a 24/7 basis to the public, industry and relevant agencies in Singapore. Singapore has also developed the tsunami early warning system in 2008.

Context & Constraints:

The challenge is to study on vulnerabilities due to climate change

Sri Lanka (in English)

Level of Progress achieved:

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

Description:

Database for disaster information for last 30 years have been developed and available in the website.(www.desinventar.lk)

Mechanism to update data with assistance of Divisional Secretary offices is in place. EOC DMC enter the data to data base on daily basis.

Sri Lanka Disaster Resource Network Database (SLDRN) is being developed and to be updated by district level organizations. Any responding organization could have an access to this web site.

National Aquatic Resources Research and Development Agency (NARA) is operating emergency centre on 24 hrs, 7 days basis and monitoring and gathering real time and near real time ocean physical environmental data around Sri Lanka Waters from reliable sources. Disaster Management Centre (DMC) and the Department of Meteorology to provide the necessary technical information and guidance for early warning and mitigation of impacts from natural ocean disasters.

Intra- governmental net work connecting DMC, Irrigation Dept. Met Dept. Police, Media Institutes, and seven district offices, in the I phase of Project implemented with JICA assistance, to exchange data and information on disaster.

35 automatic meather station are estblished covering the entire Island with JICA assistance and available for use of the public.

Meteorological department exchange weather information on daily basis with the Disaster management center which is the focal point to disseminate early warning messages and information..

Vulnerability and capacity indicators are still not developed.

Context & Constraints:

Records are available at individual institutional level. However there is no system to exchange the information. Some of the institutions are reluctant to share their data and information. DMC with the assistance of JICA has established a Intra-Governmental net work to share data relevant to disaster management. This system need to be strengthened.

Capacity of agencies has to be improved to develop indicators to assess vulnerability and coping capacity of communities.

Officers developing DRR proposal should be trained to use data bases to identify the suitable mitigation projects based on the past experiences.

Minimizing the dependency of vulnerable communities should be taken in to account.

Syrian Arab Republic (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

Description:

The availability of systems to monitor and disseminate data on key hazards and vulnerabilities are varied, there are multi hazard mapping system which includes:

1. Digital maps for Epidemics: these maps include data about common diseases, their location, and the number of infections in each region. These maps are frequently modernized in order to know the increase or decreased of infections depending on prevention.
2. Digital maps for seismic events: these maps include data about different seismic events in all regions, and its strength, this will highlight the most critical places.
3. Data and Digital maps for forest fires: these maps include locations, frequency of wildfires, and estimating the vulnerable locations.
4. Data on Informal settlements: includes locations, number of inhabitants, probable risks that might occur because of natural disasters.

Context & Constraints:

Constraints include: insufficient financial resources which helps in developing these systems in order to cover all risks in all regions, in addition to the need to capacity building.

Tajikistan (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

Description:

Since 1969, monitoring of natural processes is conducted by Chief Directorate for Geology (CDG) of the Government of RT.

The consolidated analytic information of CDG on the condition of settlements and objects of industry and economy in dangerous zones has been transferred in 1995 to the Agency for Construction and Architecture, CoES, and to local authorities for consecutive preventive measures. It is now the main source of information for CoES and CDG in monitoring of emergency situations in the especially dangerous zones. Such surveys can be made by resolutions of the Government and by requests of local authorities.

The other source of information on monitoring and forecasting of mudslides and floods is the Republican Hydrometeorological Service. This Service forecasts the mudslides and floods. The information is relayed to CoES for the consecutive alerting of local authorities and joint preventive measures for mitigating the emergencies.

Seismological monitoring in RT is on low level - during the civil war almost all of the 49 seismic stations of the country were destroyed and looted. Of the fourteen remaining analog stations only one functions - in Dushanbe. However, the new network of seven digital stations is to become fully functional, with financial support of SDC. The network is being installed by local NGO "PMP International" with the Institute of Seismology of the Academy of Science.

A modern system of monitoring was installed and flawlessly functions at Lake Sarez in the Pamirs, monitoring the landslide-prone slope, and strong motion detectors and water level meters were installed. The system is linked to the early warning system unique in Central Asia. Both systems were parts of "Lake Sarez Risk Mitigation Project", supported by the World Bank, Government of Switzerland, AKF, USAID and the Government of Tajikistan.

Context & Constraints:

Until the end of 1995 the activity of the State Service for Monitoring of Threatening Processes was focused on:

1. Provision of service by resolutions of the Government of RT and requests of local authorities of regions (cities, districts).
2. Annual revision and inspection with use of air and road transport.
3. Creation of automated information-search system for processing the data collected by the Service.

Since 1996, the functioning of the State Service for Monitoring of Threatening Processes was almost fully terminated, and only the first paragraph is implemented. In view of this, continuous monitoring and forecasting of emergency situations related to activation of various geological processes became almost impossible. At present, planning of concrete actions in prevention of emergencies is based on use of consolidated analytical information provided by the State Service for Monitoring of Threatening Processes, detection of major threats of disasters and preventive measures, worked out by this Service.

Only ten seismic stations function at present. Processed information on the data from these stations is released after one month. Thus, one may conclude that continuous seismic monitoring in the territory of Tajikistan is not provided.

On the positive side, modern digital seismic stations are being installed in Tajikistan with support of the Swiss Office for Development and Cooperation. Seven stations will be installed before end of 2008. Altogether, the anticipated projects will help install fourteen stations throughout the country.

Uzbekistan (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

Description:

Vulnerability assessment of assets and capacities is carried out continuously by the operational and territorial subsystems of the SSPR. Emergency situations risk monitoring is conducted by the Monitoring and Forecasting Centre of MoES by sectors: Uzhymet, Seismology Institute, State Service on Geological Phenomena Monitoring, State Sanitary-Epidemiologic, Veterinary and other services. In case of emergency situations on republican level, the governmental commission comprised of stakeholder ministries and agencies conducts analysis of the socio economic and ecological consequences and losses. The results of the analysis are shared with stakeholder structures by way of recommendations for making decisions and conducting urgent measures.

For the population of the republic, there functions a centralized state early warning system which goes down to district level and performs by means of sirens, loudspeakers, television and radio broadcasting, as well as by the special local early warning systems on dangerous facilities.

Within the framework of the SSES system, there is also a well-adjusted system where non-governmental organizations share information on emergency situations of natural and technological character.

Context & Constraints:

n/a

Viet Nam (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

Description:

Statistical system from central to local levels is developed to monitor, archive and share information on socio-economic development nationwide in which hazard and vulnerabilities information is included. In the disaster prevention, response and mitigation sector, information system has also developed, updated and archived through the CFSC system from central to commune levels. The disaster-related damage information is collected and archived in two different formal systems. One is the data collection system of CCFSC for the purposes of emergency response and another is the system of General Statistics Office (GSO) used for long-term statistical purposes. Additionally, some NGOs and international organizations have the damage and need assessment data of some specific disasters. Another system to monitor, archive and disseminate data on key hazards and vulnerabilities is the webpage and the monthly newsletter of NDMP. The information in this system is available in both Vietnamese and English and free access for all stakeholders.

Context & Constraints:

Lack of DRR related information is a big challenge to ensure the rights of communities to participate in DRR planning and implementing process. When the information, and data on disaster risk, resources, and the information of policies are not clear and detail enough, the development and implementation of DRR action plan with the participation of communities will face difficulties.

Proposed solutions:

Current system and mechanisms of NDMP to monitor, archive and disseminate data on key hazards and vulnerabilities is seen as useful and effective. Therefore, its existing role and performance should be enhanced and improved.

However, in order to sustain the functions of NDMP, it needs to be integrated into the government system and its autonomy should be strengthened. Only those Government staffs whose work are directly linked to the functions of NDMP have shown genuine interest in the management and strategic direction of the

Partnership.

One of the options is that the NDMP Phase III should be a core component of DDMFSC with the support of donors. Then, the function and mandate of NDMP should be upgraded and strengthened to be a national platform for DRR fully integrated into Government system.

Yemen (in English)

Level of Progress achieved:

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

Description:

The Ministry of Water and Environment (EEGD) through the NTEDR (the DRR National Platform) is committed by its mandates to develop and establish the appropriate arrangements for the NEWS, this will be achieved through the existing cooperation program with GFDRR/WB and UNISDR.

2006, A coordination Unit for Disaster and climate change risk reduction has been established, with the MWE, chaired by the DG of Environmental Emergencies. Under the NTEDR 5 technical committees from the stakeholders (Geological, Climate Change and Meteorological , Marine , Technical hazards and coordination) to address the required action on HFA and submit the outputs to the NTEDR.

Context & Constraints:

the main constrains are:

- Lacking for the National Strategies and legal framework.
 - lacking for the financial and technical resources.
 - Lacking for knowledge.
 - Lacking for the public and official awareness.
 - Lacking for the required equipments, capacity and experience.
 - Absent of the historical data- bases.
-

Europe

Armenia (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

Description:

The Armenian NSSP is monitoring about forty geophysical, geochemical, hydrochemical, electromagnetic etc. parameters through National Observation Network incorporating about 150 stations. The monitoring systems involve in the global IRIS, READINESS, GPS and CTBTO and COSMOS networks which enable to change and disseminate data on seismic hazard. The same principle is laid in the activities of Armenian State Hydrometeorological and Monitoring Service which responsible for atmospheric and water resource monitoring. It has numerous countrywide monitoring sites controlling the level, quantity and quality of water resources.

Inspections, visual screening and vulnerability assessment of critical facilities and public buildings have been carried out by the specialists of the Armenian NSSP resulting in retrofitting and upgrading the structures. Seismic design for projected new Nuclear Power Station is of high importance and to be tendered in 2008.

Common annual natural hazards are as follows: spring deluges, windstorms, and hail.

In 2007 the 329 communities were suffered and the property and crop losses due to those hazards are evaluated as 41 mln. USD. The anti-hail devices are used to prevent the damage and losses. The demand in such devices exceeds the available quantity about 30 times.

Context & Constraints:

“Processes for data collection and dissemination are in place for all hazards and most vulnerability factors, but the poor state of technical means of monitoring as well as shortcomings in data dissemination and analysis should be addressed.

There is urgent need to improve amount, quality and accessibility of data as well as vulnerability evaluation techniques.

Bulgaria (in English)

Level of Progress achieved:

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

Description:

Some progress.

Context & Constraints:

More institutional commitment is needed.

Croatia (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

Description:

There are theme databases in place, as is linkage with systems measuring various parameters

(radiological, weather, seismologic, air quality), as well as operating procedures for providing data to relevant services.

Context & Constraints:

The process of linking separate databases into a single database and their transfer to GIS. The process is time-consuming and requires financial means and appropriate information technology equipment and well-trained personnel.

Czech Republic (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

Description:

Such systems are being build - step by step. IT WILL NEED MORE TIME.

Context & Constraints:

Financial constraints.

France (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

Description:

- Financés par l'Etat, les documents sont conçus par des établissements publics et des bureaux d'études. Ils sont établis en priorité pour les zones géographiques identifiées comme les plus vulnérables et sont mis à jour en tant que de besoin. Ils sont accessibles sur le site www.prim.net au fur et à mesure de leur parution mais aussi au plan départemental sur le site internet des préfetures.

- Les cartes de risques sont d'une approche plus complexe. Elles supposent, en effet, de prendre en compte la vulnérabilité, domaine dont l'approche et la définition sont plus délicates à cerner. Des études sont conduites actuellement dans ce domaine qui reste encore à développer largement. Elles portent sur la caractérisation de la vulnérabilité ainsi que sur les approches coût-bénéfice. Quelques actions de type « expérimental » ont été conduites, en particulier sur de grandes agglomérations telles que Paris pour le risque inondation ou Nice pour le risque sismique ou encore sur de grands ensembles comme le bassin de la Loire pour les inondations. Entrent également dans ce processus, les diagnostics portant sur la résistance aux séismes des bâtiments de classe D (bâtiments stratégiques) aux Antilles ou des études plus ponctuelles liées à des catastrophes récentes telles les inondations dans le Gard (Sommières). Ces initiatives permettent de dégager des ordres de grandeur des pertes potentielles directes, elles ne donnent en revanche aucune indication sur les conséquences dans le temps des catastrophes. Le concept même de vulnérabilité est à ce stade sans doute trop imprécis.

Context & Constraints:

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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

Description:

The BBK runs a “German Emergency Planning Information System” (deNIS: see link) together with various partners from all areas of disaster management. It includes information about hazards (and other dangers), vulnerabilities and risks, but is not completed and currently does not attempt to address climate change risks. In its recently improved version - deNIS II - it also delivers information for civil protection/disaster management (see detailed description in Priority 5). The DWD provides extensive weather forecasts and data through its Satellite Application Facilities and seeks to warn the public and the relevant authorities in case of an extreme weather event. Therefore, the DWD has reached an administrative agreement with the Federal States (Laender) in the areas of storm and thunderstorm warnings and water management. The prediction and consultation headquarters (Vorhersage- und Beratungszentrale: VBZ) in Offenbach is responsible for nationwide information, while the regional headquarters in Essen, Hamburg, Leipzig, Munich, Potsdam and Stuttgart each handle regional warnings. The DWD is currently working on a national warning centre to be established by 2010. The “Federal Environment Agency” (UBA: see link) and its “Competence Centre on Global Warming and Adaptation” (KomPass: see link), aim to identify future regional impacts of climate change and proactive adaptation to mitigate or at least minimize future losses.

Forest fire statistics are available for the whole country, although under the jurisdiction of the Federal States (Laender). At the federal level, statistics are compiled and distributed to key agencies and are publicly available on the website of the Global Fire Monitoring Centre (GFMC: see link). In some states, forest fire defence maps have been developed. The flood centres and local authorities, including responsible members of the fire brigades, collect data about hazards and vulnerabilities.

The NatCatSERVICE of the “Munich Re Group” (see link), with more than 25,000 data set entries, is one of the world’s largest damage databases for natural disasters. Between 700 and 900 events are detected and analyzed annually. As a direct result, magnitude and intensity of single damage events can be documented in different regions of the globe and be approached for regional and global danger analyses as well as to examine trends. The “Helmholtz Research Network” (see link) also provides data on natural disasters in its “Natural Disasters Networking Platform” (NaDiNe: see link).

Context & Constraints:

The challenges for deNIS and the “Joint Hazard Estimation of the Federal States (Laender) and the Federal Government” consist mainly of issues related to a lack of common understanding or appraisal of impacts: which losses are taken into consideration (e.g.: (1) capital stock risks such as damage to residences, lifelines/utilities, crops; (2) environmental risks, such as water/air/land pollution, loss of biodiversity; (3) economic risks, including reduced tax income or increased government expenditures, financial loss to government/business/residents; (4) social and cultural risks, including loss of life or injury and illness, loss of residence, decreased quality of life; (5) institutional and policy risks, such as liability, damage to reputation, increased distrust of government). Therefore experts from all areas of disaster reduction and management (including Public Private Partnerships) are integrated into a standardised structure that is currently in the process of development.

Furthermore, the precipitation prognosis of the DWD must be improved to be able to provide enhanced high water predictions and secure early warnings, the use and utility of statistics and fire defence maps to reduce wildfire risk has to be improved, and an open access rule for providing stakeholders with data needed for adaptation has to be established.

Italy (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

Description:

Comprehensive risk assessments are carried out at the different levels of the system under the responsibility of municipalities, provinces and regions, with a strong support given by the National level. The National Civil Protection Department has the responsibility to provide the whole system with guidelines and directives concerning how risk assessments have to be conducted, made available and notified from one level to the others. These measures are usually provided through National Forecasting and Prevention Programmes. The Regional Administrations are then responsible for translating the National guidelines into Regional Programmes in which roles and responsibilities of lower-level administrations are defined together with information exchange procedures. Provincial and municipal risk assessments are strongly related, since risks very often fall across the boundaries of two or more municipalities. In these cases, the coordination role played by the Provinces, or by inter-municipal cooperation bodies, is critical.

Context & Constraints:

Experience has shown that, even where standardization and notification procedures have been set, there are still differences in timing and quality of risk assessments made by small towns and middle/large cities due to the difficulty that small municipalities encounter in recruiting skilled personnel and acquiring technical resources. A number of initiatives have been undertaken in order to face this problem. The best results have been achieved through the provision of support by the administrations placed at the upper-levels of the system.

Macedonia, The former Yugoslav Rep of (in English)

Level of Progress achieved:

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

Description:

Substantial achievement has been attained regarding the regular, systematic, appropriate processes for dissemination and archiving of data, as well as the monitoring of risks, with special focus on the seismic activities and floods in the country and the region.

CMC is currently developing a multi-sectoral and multi-risk system, thus introducing new aspects and better monitoring, archiving and data dissemination practices for all hazards. To further this end, CMC is setting up networks dealing with specific risks and disasters. In that respect, cooperation agreements have been signed between CMC and other institutions for regular, timely, systematic dissemination of data and risks monitoring. For example, close cooperation exists between CMC and the National Hydrometeorological Agency which supplies CMC with meteorological data.

Also, at CMC, the free emergency phone number 195 is operational 24 hours every day, and the data received is disseminated and archived accordingly. By the end of 2010, CMC will merge all free emergency phone numbers into E-112.

CMC is presently working on the implementation of national GIS network that will enable spatial positioning and predicting possible hazard scenarios. Moreover, starting from 2009/2010, the GIS will be available online.

The effective data dissemination and archiving will be utilized by the national networks started by CMC, such as NLN and DMCoE.

Context & Constraints:

Although the systems for monitoring, data archiving and dissemination are in place, some of the equipment is outdated, and further steps are needed.

Although many public and private institutions have the basic GIS software, they are not yet connected into a national GIS network that would enable rapid share and availability of data nationwide. Therefore, CMC is starting an initiative to link all CMS stakeholders in possession of GIS system into a national network.

Also, there is a project on the introduction of an regional ultra-short wave radio network (USWRN). The network will amplify the E-112 system and the EWS alarming system. It will also improve the coordination with all USW Radio systems in the country, used by crisis management stakeholders and withing in CMC in particular.

Finally, CMC is launching an IT network that will enhance the cooperation and coordination of all CMS stakeholders.

Montenegro [\(in English\)](#)

Level of Progress achieved:

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

Description:

We perform seismic monitoring, monitoring of dangerous substances (chemical; explosives) and we recently became a member of the ARGOS Consortium, which will enable good-quality monitoring of chemical, nuclear and radiological hazards.

Context & Constraints:

Except for the seismic hazard, which is monitored by the Seismic Observatory of Montenegro, monitoring of other hazards is problematic, due to non-defined competences of various state bodies. Only after the Ministry of Interior and Public Administration defined the competences, were conditions created for a significant progress. In this area, further advancement of institutions and capacities is needed.

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

Description:

There are several systems established to monitor, archive and disseminate data on key hazards. One example is the work on climate change adaptation where a dedicated secretariat will disseminate and coordinate across sectors and administrative levels.

Another concept for disseminating information to the citizens is the project on a webportal – kriseweb - which may be a “one-stop shop” for citizens for risk information.

Context & Constraints:

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Serbia [\(in English\)](#)

Level of Progress achieved:

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

Description:

Nothing reported within this timeframe.

Context & Constraints:

Nothing reported within this timeframe.

Slovenia (in English)**Level of Progress achieved:**

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

Description:

The unified monitoring, notification and warning system in Slovenia comprises:

- the monitoring network,
- notification centres,
- the computer support and telecommunications service, and
- warning.

Monitoring (on water levels, weather conditions, etc.) is mostly done by the Environmental Agency and is available to other institutions and agencies. Notification centres that play a pivotal role in operation of the unified monitoring, notification and warning system have a direct link to the aforementioned monitors. Additionally, special monitoring on nuclear activity around the nuclear power plant is also in place. One recently established monitor is video surveillance of the Karst area (around 5,000 km² is covered by cameras), which is linked directly to the regional notification centre.

Another useful application that has been developed in recent years is a geographical information system called GIS_UJME (used in each emergency response centre) with more than 120 data layers. This is important for protection and rescue purposes, where locating callers from stationary and mobile phones was introduced last year. The location of the caller can also be determined by searching through the registers used in the GIS. GIS_UJME is regularly updated.

Some major projects done by ACPDR in 2007:

- the application "Monitoring waters" was developed for the purpose of monitoring the level of water in the rivers;
- the Internet application "Data on natural and other disasters" was developed; it enables a graphical overview of events in the last 24 hours, basic information on the event and the involvement of protection, rescue and relief forces;
- a moving sensor connected to the public information system was placed in the area of a landslide in Kropa; and
- a research project on a mobile unit to rapidly collect information from the site in the event of a landslide was prepared.

Context & Constraints:

Include new, advanced technologies into the unified monitoring, notification and warning system.

Establishing a national multisectoral project for improvement of warning system for the ongoing meteorological and hydrological hazardous events - especially the dissemination part and user-response part in collaboration with decision-makers and communities .

Sweden (in English)**Level of Progress achieved:**

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

Description:

The Swedish Meteorological and Hydrological Institute (SMHI) provides services such as general forecasts and weather warnings, industry-specific services, simulations and analyses, statistics, climate studies and contracted research are some examples. Warnings are issued to public and authorities regarding extreme weather (e.g. extreme rainfall, storm, avalanche risk)

A warning system for the risk for forest and vegetation fire has been in operation for about 10 years. The system has been improved during the last years. Aerial monitoring of forest and vegetation fire is in operation from 2007 after being discontinued for a couple of years.

Sweden participates in the EU-project Preview (Prevention and Early Warning).

Context & Constraints:

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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

Description:

The Federal Administration has established base documents at the national scale and coordinates the work of the cantons by producing technical guidelines, recommendations and tools for hazard mapping and risk evaluations. Cantons in turn perform indicative hazard mapping and coordinate the hazard and risk assessments at the municipal level, where the resulting products must ultimately be used for land use planning, preparation, protection works and other measures. The national level supports these activities financially.

Context & Constraints:

Required systems are in place for large regions (e.g. river basins), but deficits exist in smaller areas (e.g. small watersheds) and remote areas.

Turkey (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

Description:

Disaster data is mainly stored in GDDA's databases. Databases of earthquakes, landslides, rockfalls and snow-avalanches are stored in this GD's database. The databases include date of event, affected geographical area, affected number of people, affected infrastructures and photos if available. Archive of GDDA contains more than 18.000 reports which are in digital environments. Other relevant data on floods and forest fires, marine accidents etc. are stored in relevant institutions' databases. Some databases like seismic information are open for public use. However databases on landslides, forest fires can be reached from relevant institutions by demand.

In order to collect all disaster data in one database, GDDA started a new project called "Turkish National Disaster Archive System" within Marmara Earthquake Reconstruction Project (MEER) which is funded by World Bank. Within the scope of this project a center is established in GDDA Earthquake Research

Department. Other international disaster databases like EMDAT, CRED were investigated and special software was prepared. Data collection process from relevant institutions is continuing. National Disaster Archive System is compatible with e-government concept and will be accessible in three languages (Turkish, English and French). In order to decide the criterias on disaster data, the examples of other countries were reviewed and best criteria for Turkish National Disaster Archive was chosen. It will also be open for future developments. After the conclusion of the integration all disaster data, the information will be accessible for public

For Istanbul there are some vulnerability analysis of some critical buildings and structures. In Istanbul, where an earthquake is expected bigger than magnitude 7 in the near future, two bridges connecting Asian and European parts are analyzed in terms of their seismic vulnerability. Governmental buildings, especially schools, hospitals, historical and archeological structures have also been analyzed for Istanbul city under ISMEP project conducted by Istanbul Governorate.

Context & Constraints:

In developing countries which have poor social memory, the awareness on disasters is being forgotten and people live none of those events ever happened. That's why archives play an important role in the establishment of disaster awareness.

Data storage systems show differences from one institute to another. For this reason, putting all those different formatted datasets into one single database and their mutual integration takes time.

The data on vulnerabilities are mainly on project basis and are limited to the project areas. At national level some statistical information on the numbers of industrial areas located on earthquake zones are available.

United Kingdom (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

Description:

Sharing information is at the heart of emergency planning, underpinning all forms of cooperation. It may involve simple liaison between public and/or private bodies - keeping each other up to date on their current arrangements and future plans. It may also involve direct contacts, formal and informal, between responders seeking knowledge of hazards, risk assessments or other planning arrangements. It can and does have a direct impact on members of the community, ensuring that they are put in touch with, and contacted by, the organisations and public bodies that can help them through traumatic events.

Events over recent years have raised awareness of information and data sharing amongst a variety of stakeholders, and have prompted further thought and queries on wider issues outside the immediate emergency planning, response and recovery phases. The issues touch on a variety of types of sharing: personal data; emergency plans; commercial or sensitive data, and all for a variety of planning, response and recovery purposes.

Within government there is a presumption in favour of disclosure of information. There are statutory requirements, such as those within the Freedom of Information Act (FOIA) and the Environmental Impact Regulations (EIR), which give any person the right to ask for and be given any information which is held by a public authority. There are also good commercial reasons why organisations may wish to release information about their business. The Civil Contingencies Act (CCA) 2004 also places a statutory duty on Category 1 and 2 responders to share information with other categorised responders. The statutory guidance on the CCA 2004, Emergency Preparedness, also encourages information sharing between the wider emergency planning and response community.

While the initial presumption is that all information should be shared, there are certain controls on doing so. Some information should clearly be controlled if its release would be counter-productive or damaging in some other way. There are various types of information which may be suitable for some audiences, but not others. The information spectrum runs from limited-access information (even within organisations) through to information intended to be absorbed and understood by the public. Access can be and is limited in a range of ways including physical access, restrictive markings, circulation lists, the 'need to know' principle and targeting particular audiences. Any information that is shared can be restricted in its use by the giving organisation.

Context & Constraints:

Increasingly, following an emergency event, it is becoming clear that the information that local emergency planners need in advance of the event is at best inconsistent and at times completely unavailable. There is regulatory uncertainty, which is open to interpretation and variations in levels of engagement (e.g. Cat 2 responders are obliged to 'co-operate and share'). There is a tension between greater transparency and control of information.

Oceania

Australia (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

Description:

Geoscience Australia monitors and assesses earth-surface processes which pose a risk to Australia. It gathers data and develops tools for use by governments and other authorities to help them make Australia as safe as possible from natural hazards.

Proactive steps against hazards include:

- Recognising which areas have the greatest hazard potential;
- measuring the likelihood of various hazards occurring in these priority areas;
- modelling the impact of hazards;
- estimating the potential loss to communities; and
- collecting data when a hazard occurs to help prepare for future events.

Further refinement and better use of risk assessment is dependent on the parallel enhancement of information including data (in both quality and quantity). The Emergency Management Information Development Plan has been developed through work led by the Australian Bureau of Statistics in conjunction with states and territories. The plan outlines priorities required to bring national consistency to the gathering of emergency information. It highlights gaps in emergency management information required to support policy, planning and accountability. The implementation of the plan is a priority for the National Spatial Information Management working group. The aim of this work is to gather the necessary information to understand the full impacts of costs of emergencies, devise better models and tools to allocate investment across prevention, preparedness, response and recovery, and to assess the impact of emergencies on the community.

The 'National Risk Assessment Framework for Sudden Onset Natural Hazards' has been developed by the National Risk Assessment Advisory Group (an AEMC working group). The aim of the Framework is to establish a nationally consistent approach to the assessment of risk across Australia down to local level. Guidelines which will form the basis for assessments under this Framework are being drafted and will be submitted to the AEMC for endorsement later in 2008.

Context & Constraints:

Research into the effects of disasters on communities has highlighted significant gaps in knowledge on what is really meant by 'community safety'. Further research could contribute to enhanced knowledge and mutual understanding of constructs such as community centred and community safety.

It is required to have a methodology for assessing resource needs and priorities within emergency management, tools to facilitate emergency management policy exploration and decision support, and a framework for evaluating the effectiveness of emergency service investment to optimise community risk treatment

Marshall Islands (in English)

Level of Progress achieved:

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

Description:

1. Water quality monitoring
2. Regional Coordination of Pacific Islands GOOS (Global Ocean Observing System) in the SOPAC Region.
3. South Pacific Sea Level and Climate Monitoring Project [Phase IV] Support.
4. Regional Early Warning Strategy - The Early Warning Strategy is aimed at identifying a range of initiatives with regard to early warning for different hazards which PICs and partner/donor organisations can collaborate on.
5. Tsunami Capacity Assessments for PICs - The project with AusAID, Australian Bureau of Meteorology, Geoscience Australia and Emergency Management Australia is intended to gauge the capacity for tsunami assessments in PICs.
6. MapServer installed at

Context & Constraints:

1. capacity development required
 2. resources required to maintain systems
 3. stakeholder buy in to contribute information into central place
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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

Description:

There is no centralized system for all hazards and risks data. There are different systems for monitoring the main natural hazard agents (meteorological or geological), and these generally form part of or link to early warning systems (see Indicator 2 below).

Data on the human elements of hazards, including vulnerabilities, are collected and disseminated through many means. Base population statistics are collected five yearly by Statistics New Zealand, with data available at different scales often down to small mesh-blocks. Statistics New Zealand also collects other relevant data on a more regular basis. Local government, central government and NGOs, may collect additional data relevant to their responsibilities, for example the Ministry of Agriculture and Forestry collects data on the agricultural, horticultural and forestry industries.

Limited loss modelling capabilities exist nationally, notably in terms of earthquake impacts.

Context & Constraints:

Work is continuing on developing data sharing protocols and mechanisms, to be underpinned by a common national geospatial infrastructure.

Current research projects are extending loss modelling by both hazard type and elements at risk.

Vanuatu (in English)

Level of Progress achieved:

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

Description:

The VMS, have their own systems in place for the monitoring of meteorological hazards, tsunami warnings and watches and the dissemination of it to communities. One of the activities under the NAP is the

incorporation of geohazards monitoring under VMS to take effect in 2009.

In addition, the existing GIS based systems which could easily incorporate hazards and vulnerabilities information:

- a. POPGIS - Vanuatu National Statistics Office
- b. PEIN - Pacific Environment Information Network
- c. VANRIS - Vanuatu Natural Resource Inventory System
- d. Vanuatu MapServer

Of relevance is the Population Geographical Information System (POPGIS) of which the Vanuatu National Statistics Office incorporates in its information system. POPGIS are population maps of each of the six provinces of Vanuatu. The system can be expanded to include hazard and risks maps. At the moment, in addition to population maps of the 6 provinces, the system also has water resources and sanitation maps of these provinces. The NAP tasks the Vanuatu National Statistics Office to work with the relevant sector heads for the incorporation of area maps on hazard risks and vulnerability and for this to be made accessible.

The Vanuatu Map Server is also a tool that has been implemented to strengthen integrated development in three key areas of the islands systems (hazards and risk assessment; aggregates for construction; and water and sanitation). The objective of having the map server was to strengthen the availability of accurate and timely data in order to reduce vulnerability through the development of an integrated planning and management system. The data on the Vanuatu map server incorporates portions of the datasets of the Vanuatu Natural Resource Inventory System (VANRIS).

It is envisaged under the NAP, that linkages between these various systems is established to inform an information system for DRR and DM.

Context & Constraints:

With the recent launch of the Pacific Disaster Net, there is potential for it to serve as the disaster risk management information system. However, this is an area that needs to be worked out by the relevant working group.
