

Disaster ManagementUnit-III

- a) *Efforts to mitigate natural disasters National and Global levels*
- b) *International strategy for disaster reduction*
- c) *National disaster management framework*
- d) *Disaster response-Role of National, State and District.*
- e) *Disaster response a-Role of Armed forces*
- f) *Risk and Causality Management*
- g) *Role of ICT in Disaster Management*
- h) *Resource Mobilization for Effective Disaster Management.*

*Efforts to mitigate natural disasters National and Global levels*

Emergence of an organization is always through an evolutionary process. NDMA has also gone through the same stages. The Government of India (GOI), in recognition of the importance of Disaster Management as a national priority, set up a High-Powered Committee (HPC) in August 1999 and a National Committee after the Gujarat earthquake, for making recommendations on the preparation of Disaster Management plans and suggesting effective mitigation mechanisms. The Tenth Five-Year Plan document also had, for the first time, a detailed chapter on Disaster Management. The Twelfth Finance Commission was also mandated to review the financial arrangements for Disaster Management.

On 23 December 2005, the Government of India enacted the Disaster Management Act, which envisaged the creation of National Disaster Management Authority (NDMA), headed by the Prime Minister, and State Disaster Management Authorities (SDMAs) headed by respective Chief Ministers, to spearhead and implement a holistic and integrated approach to Disaster Management in India.

The National Disaster Management Authority was a brainchild of the two Committees- High Powered Committee setup in 1999 (in recognition of the importance of Disaster Management as a national priority issue). Thereafter, A separate National Committee was setup after the Gujarat Earthquake.

These two Committees made recommendations on the preparation of disaster management plans and suggestion mitigation measures. Furthermore, in the Tenth Five-Year Plan contained a chapter on Disaster Management. In pursuit of the recommendations made by these bodies, the government enacted the Disaster Management Act in December 2005.

### *International strategy for disaster reduction*

The World Conference on Disaster Reduction was held from 18 to 22 January, 2005 in Kobe, Hyogo, Japan, and adopted the present Framework for Action 2005-2015: Building the Resilience of actions and Communities to Disasters (here after referred to as the “Framework for Action”). The Conference provided a unique opportunity to promote a strategic and systematic approach to reducing vulnerabilities and risks to hazards. It underscored the need for, and identified ways of, building the resilience of nations and communities to disasters.

I. The transfer of knowledge, technology and expertise to enhance capacity building for disaster risk reduction

II. The sharing of research findings, lessons learned and best practices

III. The compilation of information on disaster risk and impact for all scales of disasters in a way that can inform sustainable development and disaster risk reduction,

IV. Appropriate support in order to enhance governance for disaster risk reduction, for awareness-raising initiatives and for capacity-development measures at all levels, in order to improve the disaster resilience of developing countries,

V. The full, speedy and effective implementation of the enhanced Heavily Indebted Poor Countries Initiative, taking into account the impact of disasters on the debt sustainability of countries eligible for this programme.

VI. Financial assistance to reduce existing risks and to avoid the generation of new risks,

(i) The promotion of a culture of prevention, including through the mobilization of adequate resources for disaster risk reduction, is an investment for the future with substantial returns. Risk assessment and early warning systems are essential investments that protect and save lives, property and livelihoods, contribute to

the sustainability of development, and are far more cost-effective in strengthening coping mechanisms than is primary reliance on post-disaster response and recovery;

(j) There is also a need for proactive measures, bearing in mind that the phases of relief, rehabilitation and reconstruction following a disaster are windows of opportunity for the rebuilding of livelihoods and for the planning and reconstruction of physical and socio-economic structures, in a way that will build community resilience and reduce vulnerability to future disaster risks;

(k) Disaster risk reduction is a cross-cutting issue in the context of sustainable development and therefore an important element for the achievement of internationally agreed development goals, including those contained in the Millennium Declaration. In addition, every effort should be made to use humanitarian assistance in such a way that risks and future vulnerabilities will be lessened as much as possible.

### **National disaster management framework**

#### **Composition**

- The NDMA has a sanctioned strength of nine members.
- The Chairman is the Prime Minister of India, as the de-facto head.
- To oversee the day-to-day affairs of the NDMA, the Vice \_chairman is appointed.
- Ever since its inception, the NDMA has been manned by non-experts who were politically affiliated to the Government.
- Recently, the Government has appointed three experts in the Disaster management Agency. These members are related to the field of Disaster Management, these esteemed members are:-
- Shri.R.K.Jain

- Dr. D.N. Sharma, Director, Health Safety and Environment Group, BARC
- Shri Kamal Kishore, Programme Advisor at UNDP, New York
- Lt. Gen. N.C. Marwah, PVSM, AVSM (Retd.)

**Organisation of NDMA:**

The National Disaster Management Authority is organised in following divisions for operational divisions:

1. Planning and Policy
2. Mitigation
3. Operations and Communication division
4. Administration division
5. Capacity Building Division
6. Finance Division

**Objectives of National Disaster Management Authority:**

- The NDMA envisions a safer and disaster resilient India.
- The objectives of NDMA are to ensure a holistic, pro-active, technology driven and sustainable strategy which would involve all stakeholders.
- It tries to foster a culture of prevention, preparedness and mitigation.

**Functions of National Disaster Management Authority (NDMA):**

The NDMA is mandated to lay down effective policies, plans and guidelines for Disaster Management. This is expected to ensure timely and effective response to disasters. To achieve this objective, the NDMA fulfills the following functions:

- Lays down policies for management of disasters.
- Approve the National Plan for Disaster Management
- Approve the plan prepared by the ministries/ Departments of the Government of India according to the National Plan.

- It lays down guidelines for integrating the measures for prevention of disaster by different Ministries/Departments of Government of India.
- It also issues guidelines for mitigation of the effects of disaster in the development plans of these Ministries/Departments.
- The NDMA lays down guidelines that are to be followed by the State Authorities in drawing up the State Plan.
- The NDMA coordinates the enforcement and implementation of the plans and policies for disaster management.
- It recommends the provisions of funds for mitigation of disasters.
- The NDMA provides support to other nations that are affected by major disasters, this is determined by the Central Government.
- The National Disaster Management Authority also takes measures for prevention of disasters, their mitigation, preparedness and capacity building for dealing with threatening disasters or disaster situations.
- NDMA lays down wide policies and guidelines that may be required for the functioning of the National Institute of Disaster Management .

### **Disaster response-Role of National, State and District**

India's geo-climatic conditions as well as its high degree of socio-economic vulnerability, makes it one of the most disaster prone country in the world. A disaster is an extreme disruption of the functioning of a society that causes widespread human, material, or environmental losses that exceed the ability of the affected society to cope with its own resources. Disasters are sometimes classified according to whether they are "natural" disasters, or "human-made" disasters.

For example, disasters caused by floods, droughts, tidal waves and earth tremors are generally considered "natural disasters." Disasters caused by chemical or industrial accidents, environmental pollution, transport accidents and political unrest are classified as "human-made" or "human-induced"

disasters since they are the direct result of human action.

A more modern and social understanding of disasters, however, views this distinction as artificial since most disasters result from the action or inaction of people and their social and economic structures. This happens by people living in ways that degrade their environment, developing and over populating urban centres, or creating and perpetuating social and economic systems. Communities and population settled in areas susceptible to the impact of a raging river or the violent tremors of the earth are placed in situations of high vulnerability because of their socio-economic conditions. This is compounded by every aspect of nature being subject to seasonal, annual and sudden fluctuations and also due to the unpredictability of the timing, frequency and magnitude of occurrence of the disasters.

**(ii) Education and Training:**

(h) Promote the inclusion of disaster risk reduction knowledge in relevant sections of school curricula at all levels and the use of other formal and informal channels to reach youth and children with information; promote the integration of disaster risk reduction as an intrinsic element of the United Nations Decade of Education for Sustainable Development (2005-2015).

- Promote the implementation of local risk assessment and disaster preparedness programmes in schools and institutions of higher education.
- Promote the implementation of programmes and activities in schools for learning how to minimize the effects of hazards.
- Develop training and learning programmes in disaster risk reduction targeted at specific sectors (development planners, emergency managers, local government officials, etc.).
- Promote community-based training initiatives, considering the role of volunteers, as appropriate, to enhance local capacities to mitigate and cope with disasters,

- Ensure equal access to appropriate training and educational opportunities for women and vulnerable constituencies; promote gender and cultural sensitivity training as integral components of education and training for disaster risk reduction.

**(iii) Research:**

Develop improved methods for predictive multi-risk assessments and socioeconomic cost-benefit analysis of risk reduction actions at all levels; incorporate these methods into decision-making processes at regional, national and local levels,

Strengthen the technical and scientific capacity to develop and apply methodologies, studies and models to assess vulnerabilities to and the impact of geological, weather, water and climate-related hazards, including the improvement of regional monitoring capacities and assessments.

**Public awareness**

Promote the engagement of the media in order to stimulate a culture of disaster resilience and strong community involvement in sustained public education campaigns and public consultations at all levels of society.

**Reduce the underlying risk factors:**

Disaster risks related to changing social, economic, environmental conditions and land use, and the impact of hazards associated with geological events, weather, water, climate variability and climate change, are addressed in sector development planning and programmes as well as in post-disaster situations.



### *Armed forces role in disaster response*

Whenever a disaster strikes, be it natural or man-made, the Indian armed forces are called upon to handle the situation. They are always ready to move to any kind of disaster-affected areas and have the guts to work under adverse conditions

India is one of the most vulnerable nations in the world, susceptible to multiple natural disasters owing to its unique topographic and climatic conditions. Its coastal states, particularly the eastern coast and Gujarat are exposed to cyclones, 40 million hectares (eight per cent) of land mass is flood prone, 68 per cent faces drought threat, 55 per cent of the area is in seismic zones III-IV and falls under earthquakes-prone belt and sub-Himalayan region and Western Ghats are threatened by landslides. Moreover, India is increasingly getting susceptible to man-made disasters related to industrialisation, transportation, environmental degradation and terrorist attacks. Besides, there is no legal ratification either at the Union or the state governments level to deal with such disasters in comprehensive manner as the subject of disaster management is not specified under any of the three lists (Central, state and concurrent) of Seventh Schedule of the Indian Constitution.

The government of India is aware of the urgent need for better disaster response mechanism, but the overall trend in the nation has indicated that the level of preparedness of the Centre as well as the states is extremely uneven and requires considerable strengthening. Fortunately, the Centre and a number of states have displayed growing appreciation for the need of effective disaster management strategies. Of late, the nodal agency for coordination of relief, response and overall natural disaster management is positioned under the Union ministry of home affairs. However, when any disaster occurs in

India, the armed forces under the ministry of defence is called upon to intervene and handle the situation.

As the development oriented Indian civil administration is ill equipped for undertaking disaster response activities in the event of major disasters, they merely rely on the armed forces. At the same time, the Indian armed forces, being one of the most dedicated, professional, modernised armed forces in the world with rapid strides in technology development, adequately equipped with the necessary technical competence, man power and material resources undertakes rescue and relief operations of any disasters. For instance, when tsunami occurred in December 2004, the Indian army, navy and the airforce coordinated by the Integrated Defence Staff (IDS) efficiently executed the relief, rescue and evacuation assignments under Operation Sea Wave, and also extended aid to Sri Lanka and Maldives under Operation Rainbow and Operation Castor at the request of their respective governments for assistance. Whether the Kashmir earthquake of 2005, the cyclone in Bangladesh on 15 November 2007, the fire breakout at Burrabazar in Kolkata on January 12, 2008, or the recent serial blasts at Bangalore and Ahmedabad on July 2008, the role played by the Indian armed forces is commendable.

Above and beyond its primary role, i.e. to defend the nation against any external aggression the Indian armed forces are inevitably involved in securing the country from diverse unconventional fronts. They are always in the state of operational readiness to move to any kind of disaster-affected areas and have the daring to work under adverse ground and climatic conditions, which is of immense help in assisting the civil authority during disasters. Their performance in rescue and response action after disasters has been

exemplary and with the ever increasing frequency of disasters in the South Asian region, they will continue to play a vital role in the years to come.

Furthermore, in spite of the disaster rescue and relief responsibilities, there is need for decisive modus operandi for operational coordination between the civil administration and the armed forces. Since, the armed forces' effective response depends on immediate information made available by the state administration, delay in information has often caused loss of precious time due to lack of proper communication and coordination with the civil authority and concern for loss of lives. In this regard, the state institutions must appreciate the operational line of action in which the armed forces function. The armed forces' professional ethics are autonomous in character and do not encourage civil interference. At the same time, the armed forces need to acknowledge that the source of primary information for disaster response lies with the state. As disaster management plan should incorporate the role expected of the armed forces so that the procedure for deploying them is well-organised, there is a need to encompass an interface personnel correlation between the state government and the armed forces for immediate effective delivery of relief to the victims affected by disasters.

### *Risk and Causality Management*

Disaster Risk reduction (DRR) aims to reduce the damage caused by natural hazards like earthquakes, floods, droughts and cyclones, through an ethic of prevention. Disasters often follow natural hazards.

The Hyogo Framework is a global blueprint for disaster risk reduction efforts during the next decade. Its goal is to substantially reduce disaster losses by 2015-in lives, and in the social, economic, and environmental assets of communities and countries.

#### **five priorities for action:**

- (a) Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.
- (b) Identify, assess and monitor disaster risks and enhance early warning.
- (c) Use knowledge, innovation and education to build a culture of safety and resilience at all levels.
- (d) Reduce the underlying risk factors.
- (e) Strengthen disaster preparedness for effective response at all levels.

#### **Information Management and Exchange:**

- (a) Provide easily understandable information on disaster risks and protection options, especially to citizens in high-risk areas, to encourage and enable people to take action to reduce risks and build resilience. The information should incorporate relevant traditional and indigenous knowledge and culture heritage and be tailored to different target audiences, taking into account cultural and social factors.
- (b) Strengthen networks among disaster experts, managers and planners across sectors and between regions, and create or strengthen procedures for using

available expertise when agencies and other important actors develop local risk reduction plans.

(c) Promote and improve dialogue and cooperation among scientific communities and practitioners working on disaster risk reduction, and encourage partnerships among stakeholders, including those working on the socioeconomic dimensions of disaster risk reduction.

(d) Promote the use, application and affordability of recent information, communication and space-based technologies and related services, as well as earth observations, to support disaster risk reduction, particularly for training and for the sharing and dissemination of information among different categories of users.

(e) In the medium term, develop local, national, regional and international user-friendly directories, inventories and national information-sharing systems and services for the exchange of information on good practices, cost-effective and easy-to-use disaster risk reduction technologies, and lessons learned on policies, plans and measures for disaster risk reduction.

(f) Institutions dealing with urban development should provide information to the public on disaster reduction options prior to constructions, land purchase or land sale.

(g) Update and widely disseminate international standard terminology related to disaster risk reduction, at least in all official United Nations languages, for use in programme and institutional development, operations, research, training curricula and public information programmes.

**Role of Gram Panchayats:**

- 1) In addressing the emerging concerns of climate change adaptation and mitigation, NGOs has provided training to local communities and thus sensitized them for global warming and climate change. It is mainly done by the NGO members of Sildubi Dolphin club who got the training at district and state level on disaster preparedness. They have tried to inculcate innovative approaches based on the good practices by planting trees which can reduce the impact of global warming and climate change and thus can reduce the incidence of flood.
- 2) NGOs often bring the financial resources from bi-lateral and multilateral donors for implementing pragmatic and innovative approaches to deal with flood risk and vulnerability, by effectively integrating and converging the various government programmes, schemes and projects to create the awareness in transforming the lives of at-risk communities. Focus on the most vulnerable communities and people like aged, weak, handicapped is done by the NGOs members. Setting and Committing to Minimum standards of self help is done by the NGOs.
- 3) NGOs namely Sildubi Dolphin Club are encouraging rural women through Self Help Groups (SHGs) in availing micro finance/ loan and thus it is providing the women a platform to discuss their problems collectively including the problem of flood and how to deal with it. Researcher has observed that women are more prepared to face the flood before it strike to their family's economy and thus they keep some amount of rupees e.g Rs.2000/- to deal with problems which will arise during the time of flood.
- 4) Provision of safe drinking water—installation of tube well or other pipe water arrangement is done during the time of flood in Rangirghat GP as it is close to

Block Head Quarters. Materials for making temporary latrines are visible only in case of Rangirghat G.P.as it is close to Block Head Quarters.

- 5) First Aid medicines especially for water borne diseases; treatment with like paracetamol, Chlorine tablets, Oral re-hydration powder etc. are found to be provided in both the communities. This is mainly done by Health Department.
- 6) Fast food items like satoo, beaten rice, bread, biscuits, beans etc is preserved as ready food during flood time mainly by the tea and ex- tea garden communities.
- 7) Temporary Cooking utensils like stoves are kept for flood time and it is practiced by all the communities in both the villages etc.
- 8) Provision of energy for lighting and cooking such as lantern, torches, LPG gas cylinders are found in well to do families and not in poor families.
- 9) Tents, plastic sheets etc are provided by the Government during the taking temporary shelter due to flood.
- 10) The housing condition of flood affected people in both the villages is not good and they hardly go for construction of any permanent structure and continue to live in unsanitary condition. Few of the families have constructed pucca houses in Rangirghat Village after raising the plinth level although it is affected by flood every year. This is due to the training provided by the NGOs and its closeness to block head quarters.
- 11) It is learned from the FGD that community based flood management techniques are getting more systematic in these villages due to the introduction of Gram Sabha being conducted by GP offices as per the instruction of Government of Assam. As such it is helping CBFM to take a structured shape.
- 12) Gender sensitization in flood management which were lacking in recent years are gaining ground due the increase in the level of education among women in these communities.

**NGOs in Disaster Management.**

Role of NGOs in Disaster Management be adopted and contextualized as a collective initiative, along with transparency and accountability principles to be institutionalized at all levels. Action Points are:-

1) Geographic spread of NGOs Develop a database of NGOs at all levels working on disaster management focusing on geographic outreach and thematic capacities of the organisations (Action: DDMA with the help of NGOs)

2) Volume of support provided by NGOs Compile statistics on quantum of support provided by NGOs at all levels, both international and national (Action: NDMA, SDMA and DDMA)

3) Institutional mechanisms Establish meaningful engagement with concerned government bodies such as Planning Commission, Finance Commission, NDMA, nodal ministries, state level bodies, district level bodies, local level bodies and other stakeholders

4) Coordination Establishing inter agency mechanisms for coordination and networking activities (information and knowledge management, training and capacity building, collaborative advocacy, quality and accountability) at all levels (Action: NDMA, SDMA and DDMA)

5) Accessibility Establish protocols for cooperation and ensure access to the affected areas with support from government agencies at respective levels like NDRF and SDRF that have good logistics base to reach inaccessible areas (Action: NDMA, SDMA and DDMA)

6) Hazard and vulnerability based planning Conduct community centric hazard and vulnerability analysis at all levels, and develop disaster management plans in accordance



(7) Community participation Ensure community participation in assessment, planning, implementation and monitoring of activities at all levels (Action: NDMA, SDMAs and DDMA's)

8) Institutionalizing Knowledge Creation and Management: Consolidation of institutional learning processes and creation of a public domain knowledge bank as well as educational programmes will support long term improvements in capacities.

9) Mainstreaming of Disability Issues in DM Support the most vulnerable groups through mitigation activities as well as disaster preparedness and response, with a particular focus on the special needs of the Persons with Disabilities (PWDs).

10) Gender Mainstreaming Make women's as well as men's concerns and experiences an integral dimension in the design, implementation, monitoring and evaluation of policies and programs such that inequalities between men and women are not perpetuated through the routine operations of DM.

11) Focus on most vulnerable rather than only on epicenter National level: Advocate with all actors to reach out to gap areas State level: Coordinate among actors to identify gap areas at District and Local level: Ensure targeting with equity and outreach to all excluded areas

12) Rural-urban diversity Develop the capacities of NGOs or specialised civil society agencies at all levels to manage urban as well as rural disasters and accordingly make investments

13) Adherence to standards National level: Develop minimum standards for India State level: Develop minimum standards for the state District and Local level: Develop capacities for adherence to minimum standards through collective and coordinated efforts of all stakeholders

### Role of ICT in Disaster Management.

The use of ICT in weather forecasting is broad. Weather forecasting offices use mass media to inform the public on weather updates. After tropical storm Ondoy in the Philippines, the Filipino people are more curious and aware about the weather hazards. Meteorological offices are also using advanced tools to monitor the weather and the weather systems that may affect a certain area.

Monitoring devices include:<sup>[43]</sup>

- Weather satellites
- Weather radars
- Automatic weather stations
- Wind profilers
- Other synoptic data or weather instruments, including Earth Simulator which is used to model climate and weather conditions.

Climate change is a global phenomenon affecting the lives of mankind. In times of calamities, information and communication technology is needed for disaster management. Various organisations, government agencies and small and large-scale research projects have been exploring the use of ICT for relief operations, providing early warnings and monitoring extreme weather events.<sup>[45]</sup> A review of new ICTs and climate change in developing countries highlighted that ICT can be used for

(1) Monitoring: observing, detecting and predicting, and informing science and decision making;

(2) Disaster management: supporting emergency response through communications and information sharing, and providing early warning systems; and

(3) Adaptation: supporting environmental, health and resource management activities, up-scaling technologies and building resilience.<sup>[45]</sup>

Geographic information systems (GIS) are also used in several ICT4D applications, such as the Open RDI aims to minimize the effect of disaster in developing countries by encouraging them to open their disaster risk data. GIS technologies such as satellite imagery, thematic maps, and geospatial data play a big part in disaster risk management. One example is the HaitiData, where maps of Haiti containing layers of geospatial data (earthquake intensity, flooding likelihood, landslide and tsunami hazards, overall damage, etc.) are made available which can then be used by decision makers and policy makers for rehabilitation and reconstruction of the country.<sup>[50][51]</sup> The areas which are receiving priority attention include natural resources information assessment, monitoring and management, water shed development, environmental planning, urban services and land use planning.<sup>[52]</sup>

Government, non-government and other organizations are encouraged to use ICT as a tool for protecting environment and developing sustainable systems that save natural resources, to implement green computing and to establish surveillance systems to forecast and monitor natural and man-made disasters.

According to a research by OECD, ICTs can be tools for dealing with environmental issues as follows:

1. *Environment surveillance*: Terrestrial (earth, land, soil, water), ocean, climate and atmospheric surveillance, data collection, storage and record technologies, remote sensing, telemetric systems, geographic information systems (GIS) etc.

2. *Environment analysis*: Different computational and processing tools are required to analyze the data collected from environment. Some of these tools are land, soil, water and atmospheric quality assessment tools, Tool for analyzing atmospheric conditions like GHG emissions and pollutants etc.
3. *Environment planning*: Environment planning and policy formulation require analyzed data, information and decision support systems.
4. *Environment management and protection*: Information and communication technologies for management and protection of environment include resource and energy conservation and management systems, GHG emission management and reduction systems and controls, pollution control and management systems etc. ICT can reduce its own environmental impacts by increasing system efficiency which ultimately reduce the overall negative impact on environment.
5. *Impact and mitigating effects of ICT utilization*: ICT use can mitigate the environmental impacts directly by increasing process efficiency and as a result of dematerialization, and indirectly by virtue of the secondary and tertiary effects resulting from ICT use on human activities, which in turn reduce the impact of humans on the environment.
6. *Environmental capacity building*: ICT is used as a media to increase public awareness, development of environment professionals, and integrating environmental issues into formal education.

**Resource Mobilization for Effective Disaster Management.**

a. Assess existing human resource capacities for disaster risk reduction at all levels and develop capacity-building plans and programmes for meeting ongoing and future requirements.

b. Allocate resources for the development and the implementation of disaster risk management policies, programmes, laws and regulations on disaster risk reduction in all relevant sectors and authorities at all levels of administrative and budgets on the basis of clearly prioritized actions. Governments should demonstrate the strong political determination required to promote and integrate disaster risk reduction into development programming.

c. Mobilize the appropriate resources and capabilities of relevant national, regional and international bodies, including the United Nations system. Provide for and support, through bilateral and multilateral channels, the implementation of this Framework for Action in disaster-prone developing countries, including through financial and technical assistance, addressing debt sustainability, technology transfer on mutually agreed terms, and public-private partnerships, and encourage North-South and South-South cooperation. Mainstream disaster risk reduction measures appropriately into multilateral and bilateral development assistance programmes including those related to poverty reduction, natural resource management, urban development and adaptation to climate change;

(d) Provide adequate voluntary financial contributions to the United Nations Trust Fund for Disaster Reduction, in the effort to ensure the adequate support for the follow-up activities to this Framework for Action. Review the current usage and feasibility for the expansion of this fund, inter alia, to assist disaster-prone developing countries to set up national strategies for disaster risk reduction.

(e) Develop partnerships to implement schemes that spread out risks, reduce insurance premiums, expand insurance coverage and thereby increase financing for post- disaster reconstruction and rehabilitation, including through public and private partnerships, as appropriate. Promote an environment that encourages a culture of insurance in developing countries, as appropriate.