setting
the scene

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Chapter Brief

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Introduction to Disaster Risk Reduction

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Chapter Brief

- Not too long ago, disasters were the responsibility of the fire brigade, relief workers and the army, and the emphasis was on responding as rapidly as possible to prevent further loss of life and social, economic and political damage.

- Presently it has taken a different perspective and it looks at the range of factors and processes that lead to the occurrence of disasters, and increasingly recognized as the result of development practices that cannot be maintained (unsustainable development).

- Examples of unsustainable development practices can be seen everywhere.

- The disaster risk reduction framework is composed of risk awareness and assessment including hazard analysis and vulnerability/capacity analysis; knowledge development; public commitment and institutional frameworks; application of mitigation measures; and early warning systems.

- Risk reduction comprises components such as mitigation, preparedness, response and recovery.

- Disaster risk reduction should be everyone's priority and positive actions should include legal arrangements, policy formulation, planning development, implementation and implementation support

Introduction

"At first people refuse to believe that a strange new thing can be done, then they see it can be done - then it is done and all the world wonders why it was not done centuries ago."

Frances Hodgson Burnett, The Secret Garden

Disaster risk management is a rapidly changing field. The view that disaster represents the consequences of a catastrophic event is being replaced by a model of disaster as the result of unsustainable development practices. Disaster risk management is an integral part of sustainable development.

This chapter sets the scene by defining the basic concepts and processes of disaster risk reduction, including

- Knowing how disaster risk reduction links to sustainable development

- Understanding the phases of the "disaster management cycle"

- Implementing the components of disaster risk reduction to strengthen conditions vulnerable to the occurrence of hazards

- Being able to apply multi-level, multi-sector and multi-stakeholder approaches to disaster risk reduction

Case studies at the end of the chapter illustrate the information presented in the chapter.

Key Words

Disaster

A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources.

A disaster is a function of the risk process. It results from the combination of hazards, conditions of vulnerability and insufficient capacity or measures to reduce the potential negative consequences of risk. *(UNISDR, 2004)*

Disaster risk management

The systematic process of using administrative decisions, organization, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters. This comprises all forms of activities, including structural and non-structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse effects of hazards. *(UNISDR, 2004)*

Hazard

A potentially damaging physical event, phenomenon or human activity that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

Hazards can include latent conditions that may represent future threats and can have different origins: natural (geological, hydrometeorological and biological) or induced by human processes (environmental degradation and technological hazards). Hazards can be single, sequential or combined in their origin and effects. Each hazard is characterized by its location, intensity, frequency and probability. *(UNISDR, 2004)*

Risk

The probability of harmful consequences, or expected losses (death, injuries, property, livelihoods, economic activity disrupted or environment damaged) resulting from interactions between natural or human-induced hazards and vulnerable conditions.

Conventionally risk is expressed by the notion: RISK=HAZARD x VULNERABILITY. Some disciplines also include the concept of exposure to refer particularly to the physical aspects of vulnerability. Beyond expressing possibility of physical harm, it is crucial to recognise that risks are inherent or can be created or exist within social systems. It is important to consider the social contexts in which risks occur and that people therefore do not necessarily share the same perceptions of risk and their underlying causes. *(UNISDR, 2004)*

Risk assessment/Analysis

A methodology to determine the nature and extent of risk by analyzing potential hazards and evaluating existing conditions of vulnerability that could pose a potential threat or harm to people, property, livelihoods and the environment on which they depend. The process of conducting a risk assessment is based on a review of both the technical features of hazards such as their location, intensity, frequency and probability; and also the analysis of the physical, social, economic and environmental dimensions of vulnerability and exposure, while taking particular account of the coping capabilities pertinent to the risk scenarios. *(UNISDR, 2004)*

Sustainable Development

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and the future needs. *(Brundtland Comission, 1987 in UNISDR, 2004)*

> *Sustainable development is based on socio-cultural development, political stability and decorum, economic growth and ecosystem protection, which all relate to disaster risk reduction.* (UNISDR, 2004)

Disaster Risk Reduction Concepts

Disaster Risk Reduction and Sustainable Development

> *"… disaster risk management considerations would add marginally to the cost of the development activity. However, failure to factor disaster risk management into the planning process is usually extraordinarily costly in the long run, makes sustainable economic development more difficult to achieve and frustrates efforts to reduce poverty (especially as, in Asia, disasters tend to strike the same communities repeatedly)."*
>
> *Brennan, UNDP (ISDR 2003: 5)*

Not too long ago, disasters were believed to be acts of God and therefore, unavoidable. Emphasis was on responding as rapidly as possible to prevent further loss of life and social, economic and political damage. However, if we take a different perspective and look at the range of factors and processes that lead to the occurrence of disasters, they are increasingly recognized as the result of development practices that cannot be maintained (unsustainable development).

Examples of unsustainable development practices are everywhere:

• Hilly and mountainous areas (China, India, Nepal, Philippines, Sri Lanka and Thailand) are most prone to flash flood and landslides, which are aggravated by deforestation and cultivation that destabilizes slopes.

• Roads constructed on flood plains in many Asian countries impede water flow, which contributes to and prolongs flood.

• In Wuhan, China, filling in of this so-called "city of lakes" that use to serve as water reservoirs/retention ponds have caused major flood in the area.

• Countries along or adjacent to seismic zones (Afghanistan, China, India, Iran, Nepal, Philippines and the Pacific Islands) are more vulnerable as more buildings and infrastructure that are constructed without earthquake-resistant features become exposed to earthquakes.

• Many countries in East Asia will be particularly vulnerable to climate change and associated sea-level rise as many human settlements and so much industrial infrastructure are located in coastal or lowland areas. The vulnerability of coastal settlements and infrastructure facilities have been demonstrated through the high losses and casualties due to the devastation caused by the tsunami on December 26, 2004 in about ten countries in Asia.

Integrating disaster risk reduction into the development process in these instances would have assured that cultivation is complemented with techniques to stabilize slopes and minimize soil erosion; that flood reduction culverts and spans across water channels were factored in road design; and that land-use systems and building codes that support risk reduction are developed.

Disaster Risk Reduction Framework (Disaster Reduction)

It *"is the conceptual framework of elements considered with the possibilities to minimize vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development."* (UNISDR, 2004)

The disaster risk reduction framework is composed of the following fields of action, as described in ISDR's publication 2002 "Living with Risk: a global review of disaster reduction initiatives", page 23:

- Risk awareness and assessment including hazard analysis and vulnerability/capacity analysis;

- Knowledge development including education, training, research and information;

- Public commitment and institutional frameworks, including organisational, policy, legislation and community action;

- Application of measures including environmental management, land-use and urban planning, protection of critical facilities, application of science and technology, partnership and networking, and financial instruments;

- Early warning systems including forecasting, dissemination of warnings, preparedness measures and reaction capacities.

Components of Disaster Risk management

Integrating the following four aspects into all parts of the development process leads to sustainable development and lessens post-disaster loss of life, property and financial solvency. Successful disaster risk management requires the implementation of all these four phases of the disaster management cycle.

1. **Mitigation / Measures to be taken before and after an event**
   Mitigation lessens the likelihood and severity of disaster by implementing sustained actions, such as improved construction practice, to reduce or eliminate long-term risk to people and property. Mitigation of hazard impacts reduces the possibility of disaster and reduces the need for assistance. Actions include,

   • Hazard assessment
   • Vulnerability analysis
   • Risk assessment
   • Risk evaluation
   • Vulnerability reduction/mitigation strategies (structural and non-structural)
   • Integration of disaster risk reduction activities in all development activities making it mandatory, with a mechanism similar to EIA process or making it a part of the EIA process

2. **Preparedness / Measures to be taken before and after an event**
   Preparedness lessens the severity of disasters by preparing people for disaster, developing plans to ensure an effective response and recovery and training people to implement plans after a disaster occurs. Preparedness includes,

   • Prediction and warning for different disasters
   • Emergency preparedness (for monitoring, alert and evacuation, immediate disaster assistance to set-up medical operations, deployment of search and rescue teams and distribution of disaster supplies and equipment etc.)
   • Education, training and public awareness

3. **Response / Measures to be taken during and immediately after an event**
   To be ready for response with capability to provide rapid and efficient medical, rescue and emergency supplies, and equipment to those in need.

- Mobilisation
- Assessment
- Requirement analysis
- Rescue and evacuation
- Emergency assistance (medical care, shelter, distribution of food, water & supplies)

4. **Recovery / Post disaster measures (long term after the disaster)**

Recovery is implementation of actions to promote sustainable redevelopment following a disaster, including new building code standards and land use planning controls. Recovery consists of,

- Rehabilitation
- Reconstruction (During reconstruction it is absolutely necessary to consider mitigation measures including relocation, land use zoning etc.)
  - Rebuilding of houses and buildings
  - Financing for rebuilding
  - Repair of roads, bridges, water system etc.
- Psychological counseling
- Long-term assistance to rebuild the community is critical to survival

During the past these four aspects were represented in the form of a continuous cycle as four phases **Mitigation, Preparedness, Response** and **Recovery** to explain their relationship to development**.**

However, that concept is not being used now as it poses a danger that it may lead to certain misinterpretations, such as,

- Each are independent, unrelated activites
- Mitigation is carried out only before a disaster
- Reconstruction can be done without consideration for any recurrence of disasters in the future (especially in rare but events with high consequences)
- Development activities in the country can take place irrespective of the impact of potential threat from natural hazards
- No need to relate the relief, response and recovery activities to development planning, as in the case of mitigation and preparedness

What are the components of disaster risk reduction?

As disaster risk reduction encompasses a wider range of interests and abilities, there is a growing requirement for political and professional collaborations and partnerships. These inter-relationships address multi-level (national and sub-national), multi-hazard (flood, cyclone, earthquake, landslide, fire and volcano eruptions), multi-sector (utilities, health, education, planning, transportation and construction), multi-phase (preparedness, mitigation, response and recovery) and multi-stakeholder (government, NGOs, community groups, private sector) approaches.
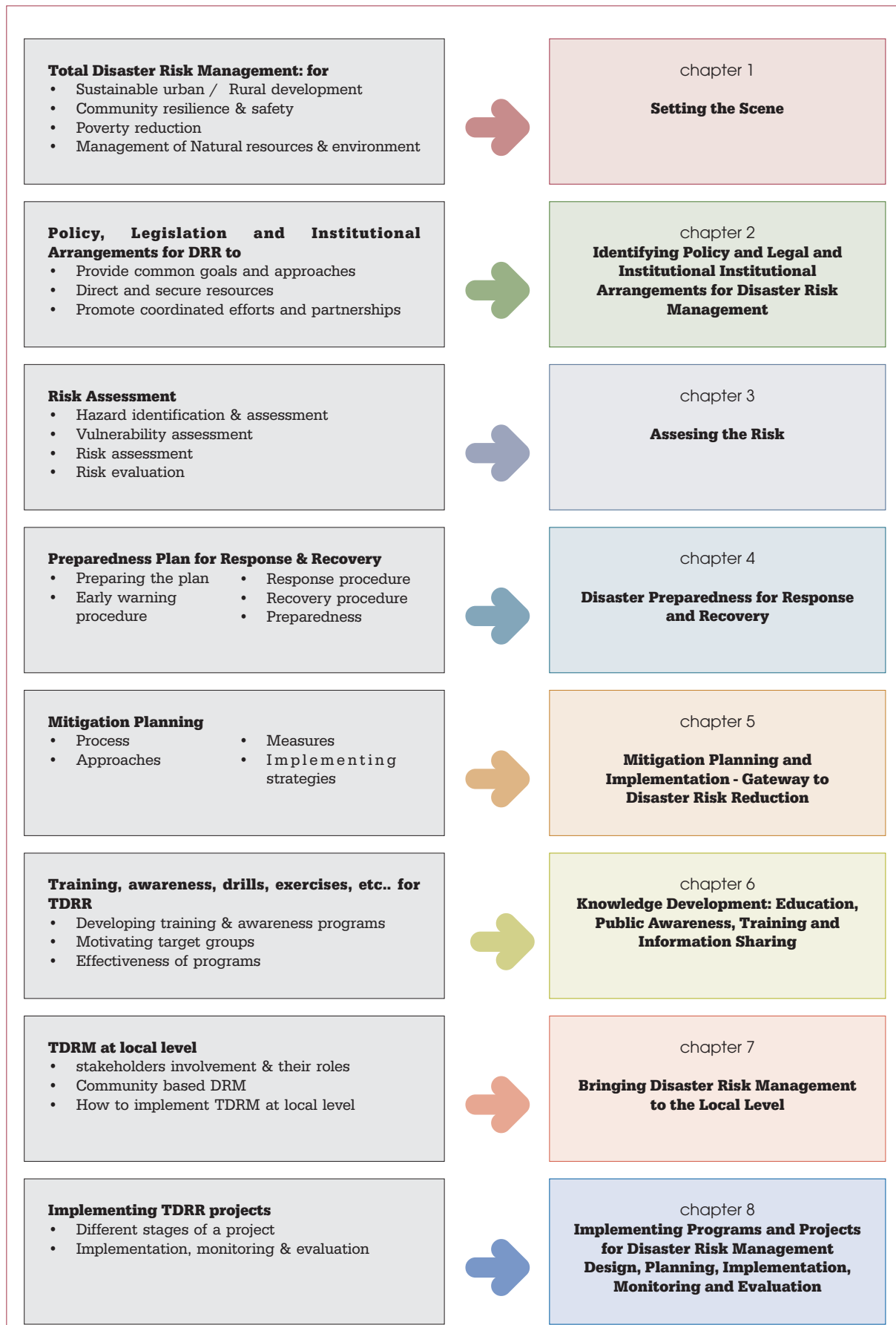
The components of disaster risk reduction as included in this primer are shown illustratively in the **Primer Outline** (Flowchart 1.1) and in Chapter 2.

see chapter 2

Flowchart 1.1
Primer Outline

Total Disaster Risk Management: for
- Sustainable urban / Rural development
- Community resilience & safety
- Poverty reduction
- Management of Natural resources & environment

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chapter 1

Setting the Scene

Policy, Legislation and Institutional Arrangements for DRR to
- Provide common goals and approaches
- Direct and secure resources
- Promote coordinated efforts and partnerships

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chapter 2

Identifying Policy and Legal and Institutional Institutional Arrangements for Disaster Risk Management

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Risk Assessment
- Hazard identification & assessment
- Vulnerability assessment
- Risk assessment
- Risk evaluation

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chapter 3

Assesing the Risk

Preparedness Plan for Response & Recovery
- Preparing the plan
- Early warning procedure
- Response procedure
- Recovery procedure
- Preparedness

→

chapter 4

Disaster Preparedness for Response and Recovery

Mitigation Planning
- Process
- Approaches
- Measures
- Implementing strategies

→

chapter 5

Mitigation Planning and Implementation - Gateway to Disaster Risk Reduction

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Training, awareness, drills, exercises, etc.. for TDRR
- Developing training & awareness programs
- Motivating target groups
- Effectiveness of programs

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chapter 6
Knowledge Development: Education, Public Awareness, Training and Information Sharing

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TDRM at local level
- stakeholders involvement & their roles
- Community based DRM
- How to implement TDRM at local level

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chapter 7

Bringing Disaster Risk Management to the Local Level

Implementing TDRR projects
- Different stages of a project
- Implementation, monitoring & evaluation

→

chapter 8
Implementing Programs and Projects for Disaster Risk Management Design, Planning, Implementation, Monitoring and Evaluation

Why should disaster risk reduction be everyone's priority?

Disasters are complex problems arising from the interactions between the environment and the development of human societies. Traditional disaster preparedness activities, such as improving early warning and evacuation systems, stock piling relief supplies and strengthening disaster response capacities, play a necessary but incomplete role.

Integrating and mainstreaming disaster risk reduction into everyday decisions and activities contributes to sustainable development practices. Focus on short-term economic gains, the mismanagement of natural resources and the environment, uncontrolled development and other policies result in unsustainable development practices.

see chapter 2

The Primer focuses on the four following functions affecting the development of a more sustainable society. Each function is integral to disaster risk reduction. How these functions support disaster risk reduction is explained in greater detail in Chapter 2.

Group 1. Legal Arrangements
Legal arrangements include a framework of laws, executive orders, and other legal instruments that establish basic guidelines for governmental and non-governmental actions. A prime minister, minister, mayor or a chairman of local authority is responsible for establishing legal arrangements to guide disaster risk reduction efforts. All nations in Asia are prone to at least one type of disaster and require legal guidelines to establish effective reduction programs.

Disasters, in particular major disasters receive worldwide media coverage. Increasingly government systems and structures have come under criticism for being unprepared and for not doing enough to reduce disaster risks.
- How can you establish disaster risk reduction as a national priority and a priority for ministries and departments?
- How can you foster collaboration among ministries and departments that share responsibility for reducing disaster risks?
- How do you ensure that the development projects you are supporting are not increasing your people's risk to disasters?
- How can you motivate all stakeholders to take responsibilities for reducing disaster risk?

Roles and Responsibilities of stakeholders (individuals and institutions) are described in detail in the Appendix 1 for different phases of disaster risk management and for different groups of stakeholders.

Appendix 1.1
Roles and Responsibilities of Stakeholders

Themes / DM Cycle	Policies, Legislation and Institutional Arrangements	Assessments
Response	**All Groups:** A disaster is an opportunity to assess and amend policies, legislation and institutional arrangements to have a better emergency management operations	**All Groups:** Conduct a joint assessment on loss, damage and needs after every disaster/emergency.
Recovery	**Group 2:** Evaluate the effectiveness of policies, legislation and institutional arrangements for disaster recovery phase activities.	**All Groups:** Conduct a joint assessment to help identify immediate and long-term risk reduction measures to avoid construction to pre-disaster level conduct assessment to shorten the recovery period)

The rest of this Primer aims to introduce a range of strategies, methodologies, tools and case studies that could help to answer these questions.

Mitigation Planning and Implementation	Knowledge Development	Bringing Risk Management to local level
All Groups: Disasters are opportunities to test the effectiveness of the measures and systems developed to attend to emergencies, and respond to disasters. Emergency management and response action plan is a requirement for better coordination	**Groups 3, 4:** Collect, collate and disseminate pre-determined disaster-related data and lessons learned in managing disaster events	**Groups 2, 3, 4:** Work with local governments, local level NGOs, CBOs, civil society organizations in coordinating relief activities. **Groups 3, 4:** Mobilize community volunteers during a disaster events ensuring participation of local level NGOs, CBOs, civil society organizations
All Groups: Evaluate and improve recovery plans to integrate long term risk management. **Groups 2, 3:** Facilitate recovery by developing a comprehensive plan to guide the process **Groups 2, 3, 4:** Design detail recovery plans and initiatives that will empower individuals, improve livelihood and be sustained by targeted groups study) **Groups 3, 4:** Promote multi-stakeholder participation in developing a recovery strategy and plan	**Groups 3, 4:** Build on motivation and commitment to reduce recovery period and disaster risks by planning and implementing a knowledge development program targeted at specific level and sector. **Groups 3, 4:** Introduce disaster risk reduction through creating awareness and build capacity for risk communication	**Groups 1 and 2:** Delegate authority to local governments to initiate incentives to reduce risk **Groups 2, 3:** Partner with NGOs, businesses, affected community groups civil society organizations for recovery planning and imp0lementation. **Groups 2, 3, and 4:** Partner with local government. Local level NGOs, CBOs, civil society organizations **Group 1,2,3,4:** Promote participatory activities in recovery planning as a good governance practices

Appendix 1.2
Roles and Responsibilities of Stakeholders

Themes / DM Cycle	Policies, Legislation and Institutional Arrangements	Assessments
Mitigation	**Group 1:** Promote a national strategy for pre disaster risk reduction. Measures in development planning **Groups 1, 2:** Facilitate establishment of a well-funded institutional framework for disaster risk reduction attached to the highest political office, led by an experienced national coordinator with a team of well-trained staff. **Groups 1, 2:** Provide local government with a legal mandate and access to adequate financial and technical resources to plan initiate and implement disaster risk reduction interventions in development planning. **Groups 1 and 2:** ake usage of hazard information in urban planning a mandatory requirement **Groups 1,2,3,4:** Promote appropriate risk transfer tools and private sector involvement in implementation Group 2: Formalize lines of responsibilities for different levels and sectors before, during and after disasters and have them supported by appropriate legal provisions. **Group 3:** Incorporate disaster risk reduction in sector policies and legislation. **Group 3:** promote research to integrate risk reduction measures in all relevant sectors **Group 4**: Advocate for review and amendment of policies, legislation and institutional arrangements that promote disaster risk reduction. **Group 4:** Assist in monitoring and evaluating policy effectiveness and compliance.	**Group 1:** Pass legislation (for ensuring compliance, checks and balances for accountability) that requires risk assessments for all development projects. Group 2: Have standardized processes tools and report formats that are easily accessible for risk assessment. **Groups 2:** Establish mechanisms to coordinate risk assessments carried out by different organizations at different levels. **Group 3:** Conduct risk assessment of sector activities and make information freely available. **Groups 3, 4:** Assess risks prior to project planning and implementation, Carryout hazard zonnation mapping for all hazard types for sectors involved as appropriate **Groups 3, 4:** Facilitate Communities at risk to play an active role in risk assessment. **Groups 3, 4:** Regularly monitor the impact of policy and project decisions on vulnerabilities and capacities. **Groups 3, 4:** Review the results of risk assessment with stakeholders and Disseminate results. **Groups 3 and 4:** Develop a database on hazard information at local government level to cover the entire country

Mitigation Planning and Implementation	Knowledge Development	Bringing Risk Management to local level
Group 2: Provide framework and guidance in developing disaster risk reduction plans.

Groups 2, 3, 4: Use risk assessment as a planning tool.

Groups 2, 3, 4: Consider an appropriate mix of structural and non-structural mitigation measures for cost effectiveness.

Group 3: Incorporate disaster risk reduction activities in economic and social development plans.

Groups 3, 4: Form partnerships in the planning and implementation process.

Groups 3, 4: Consider scientific and technical know-how, as well as, traditional practices.

Groups 3, 4: Understand local perceptions of risk, capacities and needs and record traditional practices/coping up mechanisms.) | **Group 1:** Promote international and regional collaborations in knowledge development.

Groups 1, 2: Earmark funds for knowledge development.

Group 2: Incorporate disaster risk reduction modules in regular programs of schools, universities and institutes of public administration.

Group 2, 3: Standardize and systematize collection, analysis, storage and dissemination of disaster-related information

Groups 3, 4: Incorporate knowledge development in disaster risk reduction programs and projects case studies)

Group 3: Establish mechanism to regularly monitor and evaluate effectiveness of knowledge development activities and modify them if necessary.

Groups 3, 4: Conduct research studies on the impact of disasters and the different systems and approaches to disaster risk reduction & disseminate findings widely

Groups 3, 4: Build capacity and share knowledge using different media, through print (newspaper, poster, brochure), audio-visual channels (radio, television, video) and information and communications technology (computer software, the Internet and mobile phone).

Groups 3, 4: Document achievements and lessons learned and disseminate the information widely. | **Groups 1, 2:** Provide a favorable political environment (including, policies, legislation, resources) that promotes and supports the participation of local institutions in the assessment of risk, planning and implementation of risk reduction measures.

Groups 3, 4: Build capacities and establish forums for government-community dialogue for risk management. |

Appendix 1.2
Roles and Responsibilities of Stakeholders

Themes / DM Cycle	Policies, Legislation and Institutional Arrangements	Assessments
Preparedness	**Groups 1, 2:** Develop policies and legislation for all levels and sectors to have a plan of action to ensure community preparedness (e.g. ways to assess damage, how to mobilize resources, early warning system, evacuation process, security issues). Group **1 and 2:** Make preparedness action planning at local government level mandatory requirement	**Group 1:** Facilitate policies to establish a process for review and revision of preparedness plans at regular intervals and after disaster events. **Groups 3, 4:** Develop mechanism to conduct joint assessments during and immediately after disaster. so that the experience can be incorporated in future action plan

Mitigation Planning and Implementation	Knowledge Development	Bringing Risk Management to local level
All Groups: Plan for communication of warning and decisions to act efficiently and for provision of basic needs – water, food, shelter; search and rescue; medical care; and restoring infrastructure and critical facilities. **All Groups:** Allocate funds for preparedness planning and implementation. **Groups 2, 3, 4:** Link preparedness strategies and plans with development strategies and plans. **Groups 2, 3, 4:** Facilitate collaboration and coordination between scientific institutions, early warning agencies, public authorities, the private sector, the media and local community representatives to promote accurate, timely and meaningful warnings that can result in appropriate actions by an informed population.) **Groups 2, 3, 4:** Ensure plans are regularly practiced, evaluated updated and improved by all levels and sectors. **Groups 3, 4:** Conduct survey of preparedness level, Monitor and evaluate the effectiveness regularly	**Groups 2, 3:** Establish reliable system for gathering and sharing information between stakeholders (e.g. forecasts and warnings, results of risk assessments and resources available). **Groups 2, 3:** Develop and regularly update a national/regional resource network of equipment and experts required during response. **Groups 2, 3, and 4:** Incorporate in public information and education systems, knowledge of risk and appropriate response. **Groups 2, 3, 4:** Translate disaster warnings into layman's language and involve the mass media in preparing communities to take appropriate actions when warnings are issues; and in issuing the warnings to the communities.	**Groups 2, 3, 4:** Build a national network of local cadres for response (trained to disseminate warnings; assist evacuation; carry out search and rescue and first aid; conduct rapid risk assessments and manage the distribution of relief aid).

Disaster Risk Reduction Process

This is the systematic process of using administrative decisions, organization, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters. This comprises all forms of activities, including structural and non-structural measures to avoid, (prevention) or to limit (mitigation and preparedness) adverse effects of hazards.

The best way for sustainable development to become incorporated into the practices of national and sub-national (provinces/regions, local governments) organizations is to make the process part of "normal" development. By promoting a culture of sustainability, each ministry, department and individual becomes responsible for proactively identifying and acting to address the concepts and principles of sustainability in design, planning and engineering decisions.

Disaster risk reduction is a key element in establishing and maintaining sustainable development. Without disaster risk reduction critical advances in social, economic and environmental development may be eliminated by the next disaster.

A process for incorporating disaster risk reduction in steps:

Step 1. Obtain commitment
An individual, community or central government department may identify disaster risk reduction as a critical element in preventing future extreme losses. This "champion" will need to motivate authorities to establish an institutional and legal framework, adopt policies that specify roles and responsibilities and allocate a budget to carry out an effective disaster risk reduction program.

Step 2. Communicate
A clear presentation of potential national or community risks presented to authorities specifying how disaster risk reduction can improve the ability to achieve goals and objectives by reducing these risks helps gain commitment.

Step 3. Collect information
Information on past disasters and their affects, projected impacts based on new development practice and emerging research can be compiled and translated into accessible knowledge to support presentation.

Step 4. Coordinate
Coordination with other agencies, departments and groups facilitate the completion of the above tasks and strengthen commitment across all levels and sectors.

Step 5. Identify stakeholders
Stakeholders include all those who will be affected by future disasters and measures to reduce their affects. Involvement of stakeholders is a critical element in the process to establish sustainable development. Stakeholders representing general community preparedness and mitigation may be a broad cross-section of community members. Stakeholders may also represent specific sectors, such as energy or water utilities and may include engineers, planners and those residents who would be affected by changes in these systems.

Step 6. Opportunity
Be prepared to take advantage of opportunities to gain commitment by presenting information on disaster affects caused by recent local disasters or those occurring in other parts of the world.

Common Themes and Cross Cutting Issues

Common Themes

In subsequent chapters of Volume 1 you will come across ten common themes that recur throughout the three volumes that comprise the Primer on Disaster Risk Reduction. They include the importance of:

- Policy and legal framework as a foundation for integrating disaster risk reduction in development process.
- Commitment to disaster risk reduction in everyday decision-making.
- Risk assessment as a basis for decision-making.
- Response and recovery periods as opportunity to introduce disaster risk reduction in development policy and practice.
- Coordination and cooperation among the different sectors (water, housing, planning, infrastructure, health, education, finance) and levels (national, state, province, district, village/community).
- Coordination and cooperation among different stakeholders (governments, NGOs, CBOs, community groups, private sector) in different sectors and levels, including regional and international partnerships.
- A multi-hazard approach, because rarely is an area exposed only to a single hazard. A hazard, for example, a flashflood may trigger landslide or disperse toxic chemicals.
- Knowledge development in providing a foundation for informed decision-making and a common understanding among stakeholders at all sectors and levels in risk reduction issues.
- Participation of all stakeholders at all sectors and levels in disaster risk reduction planning and implementation.
- Monitoring and evaluation to review changing needs, risks and new knowledge.

setting the scene

Cross Cutting Issues

- **Food security and sustainability through Disaster risk management**
  - When carrying out a detail analysis of the requirements for achieving food security and sustainability the following is worthwhile to consider.
  - Success of food security of communities and sustainability in development cannot be assessed without taking in to account the long-term impact of risk reduction measures. Disasters can wipe out all development initiatives and no security for the poorer section of communality can be expected without addressing the vulnerability.
  - Poor communities especially in urban area cannot afford the increasing costs and loss of employment opportunities due to events of natural disasters. In urban areas poor communities live through daily wages and if employment opportunities are lost or livelihood options disappear due to disasters, the affected communities will not have any income. Farmers living in rural areas depend on the income from the harvest and if it is destroyed they will not be able to recover losses easily. Therefore it is a highly influential factor in guaranteeing the food security.

- **Poverty alleviation**
  The impact to poor sections of society in a disaster situation is high as the poor communities are the worst affected. Therefore long-term Disaster Risk Reduction Measures will help the poor in the urban sector to limit losses and protect livelihood options.

- **Promoting gender equity through Disaster Risk management**
  - Gender relation refers to the interaction between women and men that are influenced by their societal roles and status. Roles, responsibilities, behavioral pattern and status of men and women seem to be not equitable in the society of some countries. In urban areas the women are engaged in formal as well as informal categories of employment. They are heavily underpaid and frequently forced to take up jobs, which are subjected to health hazards.
  - Gender issues are highly relevant to be considered directly in emergency management, land management and improvement, flood-proofing activities among others. Now it is widely acknowledged fact that women can play an effective role in dissemination of flood warning information, motivating communities in taking preventive actions before and during

floods. Importance of Gender sensitivity has been recognized in case of evacuation, provision of accommodation during floods and in the aspects of sanitation during disaster events.

- **Participatory Governance**

  Participatory Governance is crucial in disaster risk reduction. The role of local government is to be an active leader to mobilize the community into considering actions that will assist in disaster preparedness and mitigation. Local governments need a framework that includes authority to integrate DRR in all development activities and ensuring financial resources and mechanisms of accountability to ensure mechanisms are binding and that processes will last. This commitment contributes to a sustainable culture of safety. Establishing disaster risk management at the local level allows the local community to participate in decision-making to identify risk reduction measures and in the management of potential disasters that may affect their lives. Local people understand their situation best. The experience and know-how of community members needs to be understood, respected and applied to support the development of a sustainable community.

- **Health and sanitation**

  In some areas rural as well as urban, communities are not supplied with good drinking water supply. Also some urban poor has no basic health facilities and will have to depend on limited facilities provided to the community by the authorities. Communities must be made aware of improved health and sanitation conditions and of vulnerability to health hazards after floods and other disasters.

- **Infrastructure development**

  Most of the local governments do not have resources to meet the needs of the infrastructure development. The demand is increasing and at the same time the capacity to meet the demand is decreasing. The initiatives for disaster reduction can be considered as improvements to infrastructure facilities. The improvements to drainage network, provision of culverts and small bridges to reduce the water stagnation, road filling and pavement are some of the infrastructure development work that can be undertaken.

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