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Kingdom of Cambodia
Nation, Religion and King

The Royal Government of Cambodia

National Action Plan for Disaster Risk Reduction (NAP-DRR) 2014-2018

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*****Forward*****

*****Acknowledgement****

List of Abbreviations and Acronyms

AADMER	ASEAN Agreement on Disaster Management and Emergency Response
ADB	Asian Development Bank
ADPC	Asian Disaster Preparedness Center
AHA	ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management
APG	ASEAN Partnership Group
ASEAN	Association of South East Asian Nations
CBDRM	Community Based Disaster Risk Management
CCA	Climate Change Adaptation
CCDM	Commune Committee for Disaster Management
CHF	Cambodian Humanitarian Forum
CRC	Cambodian Red Cross
DCDM	District Committee for Disaster Management
DMIS	Disaster Management Information System
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EWS	Early Warning System
GDP	Gross Domestic Product
IPCC	Inter-governmental Panel on Climate Change
JAG	Joint Action Group
MoWRAM	Ministry of Water Resources and Meteorology
MOEYS	Ministry of Education, Youth and Sport
NAPA	National Adaptation Programme of Action to Climate Change
NAP-DRR	National Action Plan on DRR 2014-2018
NCDM	National Committee for Disaster Management
NCP	National Contingency Plan
NCCC	National Committee on Climate Change
NCCSP	National Climate Change Strategic Plan
NGO	Non Governmental Organization
NSDP	National Strategic Development Plan
PCDM	Provincial Committee for Disaster Management
PWD	Persons with disabilities
RGC	Royal Government of Cambodia
SNAP	Strategic National Action Plan
SOP	Standard Operating Procedures
UNDAF	United Nations Development Assistance Framework
UNDMT	United Nations Disaster Management Team
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
VDMG	Village Disaster Management Group
WFP	World Food Programme
WMO	World Meteorological Organization

Section 1: Preamble and Summary

1.1 Introduction

Reduction of poverty is a primary national development priority of the Royal Government of Cambodia (RGC) together with sustained and inclusive growth. While the country achieved remarkable human development progress recently, 30% of the population still live in poverty[1]. One of the primary causes of persistent poverty is the increasing risk of disaster to life, livelihoods, and economic and environmental assets. Agriculture – employing the majority of the workforce (58%) and contributing more than a third to GDP – is regularly affected by drought, floods and storms. Disasters pose a significant threat to other key development sectors such as infrastructure, industry, tourism, housing, education, health and environment, which are critical for the country's sustainable development. Since 1970, the country has experienced economic loss of US$ 170 million per year due to disasters; and in 2011 alone, disasters caused 4.3% loss to the country's GDP. One third of Cambodia's communes are prone to various types of disasters (SNAP, 2008).

National Strategic Development Plan (NSDP) Update 2009-2013 and the Strategic National Action Plan on Disaster Risk Reduction (SNAP) 2008-2013 work as the overarching frameworks, and provide strategic direction to disaster risk management for the country to protect its development and wellbeing of the population. The RGC has been investing considerably to reduce disaster risks through its regular development programmes at national and sub-national levels. Although an aggregate figure is not available, a bulk of annual public expenditure that goes through different Ministries either contributes to DRR or is directly used for post disaster recovery.

Following the establishment of National Committee on Disaster Management (NCDM) in 1995, formulation of National Disaster Management Plan in 2001 and adoption of SNAP in 2008, the RGC has emphasised systematic efforts in DRR. These resulting in remarkable knowledge and skills to live with disaster risk. Cambodia endorsed the Hyogo Framework for Action (HFA) in 2005 that provides a systematic and strategic approach to reduction of vulnerability[2] and risk[3] to disasters[4]. Country is also a part to the ASEAN Agreement on Disaster Management and Emergency Response (AADMER).

The current SNAP comes to an end in 2013, which was independently assessed to take stock of key achievements, challenges and gaps. Building on the findings of the assessment and other key studies in recent years, this National Action Plan on Disaster Risk Reduction (NAP-DRR) is developed for 2014-2018.

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[1] The results of the most recently completed Cambodia Socio-Economic Survey carried out in 2007, show that poverty headcount index within parts of the country that were covered by the 1993/94 survey has declined from 39 percent in 1993/94 to 28.0 percent in 2004, and to 24.7 percent in 2007. In the rural areas in these parts of the country, the poverty headcount has declined from 43.1 percent in 1993/94 to 33.7% in 2004 and to 30.6% in 2007.

[2] Vulnerability is defined as: "The conditions determined by physical, social, economic, and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards". UN/ISDR. Geneva 2004.

[3] Disaster risk is defined as: "The potential disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or a society over some specified future time period". UNISDR.

[4] Disaster is defined as: "A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources". UNISDR. .

1.2 Purpose and Scope

The NAP-DRR 2014-18 is built on the current SNAP, and its main purpose remains the same: *To pursue proactive and integrated way to reduce risk to hazards through sustainable, innovative and realistic strategies with stronger partnership of all stakeholders*. Following the guidelines for development of action plan by the Council of Ministers, it only includes the activities that are important priority and 'must do' in nature. The NAP is aligned with the planning cycle of National Strategic Development Plan (NSDP).

The NAP describes Cambodia's roadmap to DRR for 2014-2018. It proposes to continue the effective actions currently in place, proposes actions to tackle new risks and suggests foundational investment in next five years for dealing with long term risks associated with climate change, urbanisation and industrialisation. Thus, the NAP should be considered as a living document built on the SNAP. While it is built on existing institutional structures it emphasises on further reforms, professionalisation and capacity improvement. Considering the long term nature of disaster risks, it has carefully balanced between what *must* be done and what *can* be done given the institutional capacity and resource availability. The NAP is essentially a long term plan and has adopted a gradual approach.

1.3 SNAP to NAP: Key Shifts in Focus

Cambodia's disaster management policies and practices went through a number of phases. The first generation in pre-HFA period was shaped by ad-hoc disaster response with limited prevention activities undertaken by the government and local people. The limitation of the approach was identified and the NCDM was created to lead the country's capacity building for prevention, preparedness and response.

The second generation, i.e. the post HFA phase coincided with the SNAP, added significant breadth to the country's efforts in shifting paradigm from disaster response to disaster risk reduction. DRR institutional structure has been created: NCDM at the national level and similar structures at Provincial, District and Commune levels. Partnership and development cooperation for DRR have been broadened, and more institutions from government and non-government sectors are working on DRR today. As a result, an array of DRR approaches, potentially offering Cambodia knowledge and practices on what works and what does not, have evolved. Key ministries have increasingly adopted DRR approaches in their policies and plans. Climate change adaptation has remained at the top of the national development agenda. Political support has been mobilised and sustained throughout this period that translated into the adoption of Disaster Risk Management (DRM) in the NSDP. Most of the Ministries and NCDM Secretariat have partnership international agencies and processes for exchange of lessons and technologies on DRR.

While the above-mentioned achievements are appreciated, the RGC acknowledges a number of gaps that need to be addressed in coming years:

- Inadequate policy, strategy and budgetary processes resulting from low level of awareness of the need for investment in DRR.
- Insufficient institutional capacity at national and subnational levels.
- Slow and uneven integration of DRR into development processes although more ministries are increasingly considering disaster risks in their planning and implementation.
- Insufficient geographic coverage and depth of DRR initiatives at community level.
- The early warning systems are yet to have adequate technical capacity, and population outreach.

- Limited enforcement of policies and guidelines along with limited accountability mechanisms.

NAP-DRR has considered these gaps and challenges in its formulation process. Further, it integrates the analysis of future risks that may arise from climate change, increasing urbanisation and industrialisation, and environmental degradation. It also takes into account other key policies and plans such as the National Climate Change Strategic Plan (NCCSP). The fundamental premise of the NAP-DRR is that the country cannot avert disasters due to its geographical location, and thus needs to manage and reduce risks to an acceptable level.

From the SNAP, the key shifts in focus of the NAP-DRR are the following:

- Consolidating and finalising all policies and legal processes for DRM;
- Continuing development of capacity including Ministries, sub-national level institutions and other development stakeholders including private sector;
- Deepening the efforts for mainstreaming DRR, and scaling up in all sectors;
- Creating synergies between DRR and climate change adaptation efforts and mechanism;
- Increasing the pace of reforms in national disaster management institutions to tackle increasing risks;
- Sustaining political prioritisation through developing and managing knowledge and promoting evidence based advocacy;
- Allocating dedicated resources for and strengthening the NCDM secretariat and other Disaster Management Committees at all levels for its functioning at full scale; and
- Professionalising disaster management through promotion of research and engagement of academic institutions.

1.4 Process of the NAP development

The NAP-DRR has been formulated through a road-map set up by NCDM following a three-step and inclusive bottom-up participatory process.

First, taking stock of the work done during the SNAP period through in-depth reviews of past studies. This was informed by the independent assessment of SNAP, reports of the post-HFA consultation in Phnom Penh and capacity assessment of NCDM.

Second, consultation with vulnerable communities and sub-national level stakeholders. The consultants hired by the NCDM also consulted key ministries, the United Nations Disaster Management Team (UNDMT), and Joint Action Group (NGOs working on DRR). An in-house draft outline of the NAP's programme was created at this stage.

Third, three national workshops organised in the capital that reviewed the draft extensively.

1.5 Summary of the National Action Plan on Disaster Risk Reduction 2014-2018

Goal

Build resilient nation and local communities to pursue sustainable development

Expected Outcomes

1. Significant reduction has been achieved in disaster mortality; and social, economic and environmental loss and damage in urban and rural areas as a result of all foreseen and unforeseen hazards.
2. Vulnerable men, women and children in rural, urban, coast and mountain regions are well-informed with capacity to understand current and future risks, and are capable of organising themselves to prepare for, respond to and be resilient to disasters.
3. Cambodia's knowledge and learning on DRR continues to develop.
4. Efficient disaster management institutions are in place with strong leadership, resources and capacity to manage risks at their respective levels.
5. All vulnerable people have access to accurate early warning information with advisory on time.
6. Regular decision making, planning and implementation take account of past and predicted disaster risks.
7. Adequate assistance is given to disaster affected people to recover from disaster impacts.
8. Business continuity approaches have been systematically adopted by national and local businesses communities to make their enterprises resilient to external shocks and disasters, and have plans to recover from losses.

Strategic Components

Consolidating and further enhancing capacity of the disaster management institutions at national, sub-national and local community levels.	Enhancing risk assessment and improving early warning systems.	Development and use of innovation and knowledge to build resilience.	Reduction of the underlying causes of risks through mainstreaming resilience into policies, plans and implementation.	Enhancing emergency response and recovery capabilities at all levels.

Programmes

• Finalising the Disaster Management Law. • Strengthening disaster management institutions. • Strengthening NCDM Secretariat to play its roles effectively. • Developing a fiscal framework for utilising climate change adaptation fund for DRR.	• Developing climate change integrated disaster risk maps and assessments. • Conducting research on urban and industrial disasters to inform long term planning. • Enhancing river flash floods and drought early warning capabilities. • Strategising proper storm warning dissemination system.	• Making primary and secondary education resilient. • Professionalising DRR through academic programmes in the universities. • Producing flood and typhoon resilient housing technologies • Developing efficient disaster information management system.	• Mainstreaming DRR in NSDP, sectoril policies, Ministerial plans. • Scaling up community level DRR work in all vulnerable regions. • Continuing and expanding research on drought and flood tolerant crop varieties. • Enhancing regional cooperation AAMER.	• Developing standard operating procedure (SoP). • Develop loss, damage and needs assessment systems. • Enhancing coordination capacity in line with AHA centre. • Establishing well-functioning safe areas in all vulnerable areas. • Expand and strengthen youth volunteerism in disaster management throughout the country.

1.6 Structure of the NAP-DRR

There are four chapters in the NAP-DRR document. The first two chapters provide introduction and scope of the plan, key overview of disaster risks in Cambodia, and gaps and challenges for the current efforts. The third chapter presents the vision, mission, strategic priorities and programmes. The fifth chapter elaborates on the implementation mechanism. A planning matrix is presented in Annex 1.

Section 2: Key issues considered in building the NAP

2.1 Disasters: An Inseparable Challenge for Sustainable Development in Cambodia

Disasters are inseparable from economic, social and environmental features of Cambodia. The country experiences almost all types of hydro-meteorological hazards such as flash and riverine floods, drought, heavy storms (or typhoon), dry spells, fire incidents, epidemics, and occasional industrial disasters like building collapse. Most geographical regions of the country (i.e. Riverine Central Plains, coastal region and Dangrek mountain range in the north and Cardamom mountains in the southwest) are exposed to one or more of these hazards. Such exposure is shaped by the country's geographical location in a disaster hotspot in Southeast Asia and its internal climatic and hydrological features. The mighty Mekong River that enters the country from Laos and Great Tonle Sap Lake in the middle created the unique flooding feature and most typhoons originate from the South China Sea towards the south and southeast across Vietnam and Southern China.

******Insert Cambodia disaster/hazard map*****

Floods

Cambodian rural population living in the provinces along the Mekong and Bassac river basins is predominantly dependent on the floodplain for their livelihood and subsistence. The primary economic activity in these southern provinces is agriculture, which contributes 35.6% to Cambodia's Gross Domestic Product and provides employment for approximately 5.1 million people. Fisheries and aquatic resources also play a major role in food security in these provinces with annual harvests being linked to the natural dynamics of the floodplain. Large fluctuations of water levels between the dry and wet seasons and occasional influence of dry spell during dry season cause twin-effects of drought and flood. More than three quarters of the country, which is the most productive, is exposed to such disasters causing an annual cost to national economy amounting to US$100 to 170 million (Rinbo Eng, 2009). There are two major types[5] of floods in Cambodia:

- **Flash floods** resulting from heavy downpour upstream on the Mekong river and Tonle Sap Lake that affects provinces along the Mekong and its tributaries; and south eastern areas of the country; and
- **Riverine floods** in the central plains resulting from a combination of runoff from the Mekong and heavy rains around the Tonle Sap Lake which affects the provinces around the Lake and Southern provinces.

Droughts

Compared to floods, drought is arguably less understood and researched making it difficult to generate national and international response. However, the National Adaptation Programme of Action to Climate Change (NAPA 2006) documented that people experience increasing drought in Battambang, Kampong Chhnang, Pursat, Prey Veng, Kampong Speu, Kampong Cham, and Svay Rieng provinces (CRC 2004). The drought condition – primarily a result of erratic rainfall – is exacerbated by limited coverage of irrigation facilities (the current coverage is around 20%).

[5] Helmers K and Jegillos S. Linkages between flood and drought disasters and Cambodian rural livelihoods and food security. Cambodian Red Cross Society. Phnom Penh. 2004.

There are four main causes[6] of droughts in Cambodia:

- Unpredictable delays in rainfall including onset in the early wet season;
- Seasonal and geographic variations in rainfall in terms of amount and duration;
- Early ending of rains during rainy season; and
- Common occurrence of mini-droughts of three weeks or more during the wet season that can damage rice crops which are outside irrigation coverage.

Typhoons

Tropical cyclones are the most costly meteorological disasters affecting East Asia and the Pacific with, on average, 27 tropical cyclones affecting some parts of the region each year (Chan 2008, quoted in WB 2013). Some typhoons and tropical depressions that reach Indochina do not weaken over the land and produce torrential rainfall and extensive flooding in Cambodia. Typhon becomes most damaging when it hits during the flooding season (September-October) as it causes heavy precipitation events.

2.1.1 Nature and pattern of disaster is changing

Climate change, urbanisation, change in land use pattern, reduction of forest cover and growing industrialisation continue to change Cambodia's risk environment. Climate change has already increased the frequency and intensity of floods, storm and drought, and creates new hazards such as sea level rise and salinity intrusion in the coast.

The IPCC Forth Assessment Report suggests the very likelihood of decreasing number of cold days and nights; and the number of warm days and nights has increased on the global scale (IPCC, 2013). For Cambodia, the most projected scenarios (RGC, 2013; USAID 2013) suggest an increase in wet season rainfall 3-14%. As a consequence, the wet season is expected to become wetter and the dry season drier, indicating increased frequency and intensity of floods and drought. Since 86% of Cambodia's rice production is rain-fed, the combined effects of rainfall change, salinity intrusion and increased temperature would most likely affect dominant livelihood, food security and national economy. Frequency and damaging effect of typhoon is on rise, and will most likely increase in the future (RGC, 2013) impacting coastal infrastructure and tourism sector. Intensity and maximum wind speed of tropical cyclone is projected to increase significantly in Southeast Asia and their damaging effects will go high (World Bank, 2013). Extreme rainfall associated with tropical cyclones is expected to increase by up to a third reaching 50-80 mm per hour indicating a higher level of flood risk in susceptible regions (ibid). Typhoon Ketsana that hit the country in 2009 affected 14 out of 24 provinces causing damage and loss amounting to around USD 132 million. Increasing frequency and intensity of floods, drought and storm will pose serious threat to the country's sustainable development. All these have been considered in making the NAP.

[6] Ibid and also see Chapter six of the document for more discussion on drought in Cambodia.

Table 1: Implications of climate change on DRR

Climate change implications for disaster risk	Impact of changing pattern of hazard on people	NAP's strategy to integrate climate change into DRR planning
Pattern Frequency of floods, drought and storm increased	• Reduced recovery time and deepening poverty and wellbeing. • Exhausted social capital. • Supply falls short of demand for post disaster assistance. • Increase in RGC's fiscal burden to support recovery and reconstruction.	• Investing for sustainability of DRR measures at scale. • Development and disaster response planning to considerer the likely scale and frequency of disasters. • Community based preparedness to include low impact-high frequency disasters. • Greater investment in resilient livelihoods and private infrastructure e.g. housing. • Investing in policy and programming synergy between climate change adaptation and DRR measures leading to utilisation of adaptation resources for DRR. • Integration of disaster resilient features in the recovery plans.
Nature of hazard and risk • Cumulative impact of low impact hazard increased. • Less benefit from some small scale floods. • Intensity of high impact hazard increased. • Unpredictability increased with all hazards.	• Geographical coverage of disaster increased. • Out migration likely to increase with social and economic consequences on women, children, people with disabilities and the elderly in the poorest households. • Reduction in access to natural resources (due to inundation, salinity etc.), thus increase in food insecurity. • Vulnerability to high impact hazards increased. • Community assets unable to withstand the high intensity hazards. • Current household and community level preparedness may not be able to adapt to the likely high scale of disaster.	

2.1.2 Economic cost of disasters increasing and is like to grow further

Financing recovery and reconstruction remains a heavy burden for economies in East Asia and the Pacific (World Bank, 2010). Every 100 years, on average, it is expected that losses will exceed US$17.9 billion, or an estimated 1% of regional GDP (ibid). Cambodia among some other countries would incur expected losses relative to GDP for a 1-in-100 year event at 11.7%. Cambodia, Lao PDR, and the Philippines could experience bills totalling to 18% or more of total public expenditure in the event of a 1-in-200-year disaster (World Bank, 2012). Typhon Ketsana reduced expected economic growth rate from 2.1% to 1.9% (RGC, 2010). The disasters of 2011 alone resulted in economic losses of about 4.3% of the GDP.

These figures are most likely to grow with the climate change. For example, both central plain and coastal zones which are important for key economic sectors such as agriculture, fishing and tourism, are experiencing increasing frequency of flooding, drought and typhoon, and degree sea level rise.

2.1.3 New risk, new task

Cambodia will go for further industrialisation under the ASEAN Economic Community in 2015that would increase industrialisation. Cambodia as part of the Greater Mekong Sub-Region has already entered into the ASEAN-China Free Trade Agreement. Industrialisation may experience industrial risk and be affected by disasters, if infrastructures are not built following the safety standards and do not consider disaster risks. In recent past, Cambodia experienced a number of fire and building collapse incidents although most of those have been of small scale. These not only would result in casualty, but also may damage reputation of Cambodia and likely to deteriorate its export and foreign investment environment.

The SNAP's assessment highlights limited engagement of business sector in disaster management. The sector contributes a quarter of the GDP (Sophal and Strange, 2012) and it exhibited high growth at 13.9% during 2004-2007. The sector is also made up of more than a quarter million small-scale and family based enterprises (ibid). Risk of disasters to this sector is not systematically analysed. However, recent disasters assessments have found significant impacts on them (for example, Ketsana caused US$3.5 million in damage).

Cambodia is growing as a fast urbanised nation that also means the country will experience newer types of hazards such as fire, flooding and industrial disasters. Most of the big cities are located in flat plains along the Mekong River and its tributaries, which are home to 50% of the total population. Thus, they are vulnerable to disasters that have significant socioeconomic impacts in terms of loss of lives and damage to properties and basic infrastructure including transportation services, drainage, and water and sanitation (Abhas K. Jha, et al. 2013). People living in informal settlements (79% of the urban population in Cambodia, according to UN-HABITAT 2013, Quoted in WB, 2013) are especially vulnerable to these disasters.

Tourism is another important sector for Cambodia which is also likely to be affected if disaster frequency goes high. The South East Asian region has been identified as one of the most vulnerable regions to the impacts of climate change on tourism. Sea-level rise extreme weather events, and biodiversity losses are among the key threats to the popular tourist destinations in South East Asia including Cambodia (Perch-Nielsen (2009).

2.1.4 Underlying causes of vulnerability

While people living in the flood and drought prone areas developed their ways to deal with the impact of those hazards, their capacity has a limit. Poverty is a key determinant of root causes of vulnerability of people living in the disaster prone areas. Disaster also causes poverty. Geographical variations of poverty in Cambodia match with nature and extent to which people are vulnerable to floods and drought.

The settlement pattern and reliance of agriculture, which are not often protected from disasters, are the main physical causes of vulnerability. Although people have significant breadth of knowledge of the DRR measures, poverty does not help them to make use of whatever they know. Often, traditional technology fails with the current nature of disasters. For example, people do not have knowledge of typhoon resistant housing while they have been using flood resistant housing practices for a long time.

Although the government's rural development programmes e.g. rural roads, water and sanitation, health facilities are increasingly adopting DRR principles, they are not adequate. The measures funded by NGOs and donors tend to focus on the most vulnerable areas that has resulted in the exclusion of areas that experience high impact disasters occasionally. The country's mountain region especially the ethnic minorities do not have access to any DRR services.

While the RGC puts significant emphasis on gender, it received limited attention in the disaster related policies and actions. Globally, women and girls are affected by disasters (and climate change) more than men and boys. A study of 141 natural disasters by the London School of Economics in 2006 found that when economic and social rights are fulfilled for both sexes, the same number of women and men die in disasters (Neumayer, Eric 2006). Climate change impacts such as bio-diversity degradation, food insecurity and increasing disasters have affected the already fragile human security of women. Traditional and modern gender roles make women more vulnerable and less capable to adapt to climate change. Consequences are disproportionate e.g. increase in violence against women during and after a disasters, increase in unpaid care work including collection of water and fuel, marginalisation in labour market, girls being dropped out from school, deterioration of reproductive health due to less intake of food and water, and increase in unplanned migration and trafficking of women and girls. In Cambodia, women comprise 51% of the primary workforce in subsistence agriculture and 57% of the workforce in market-oriented agriculture, but they receive only 10% of agricultural extension services (MoWA, 2008).

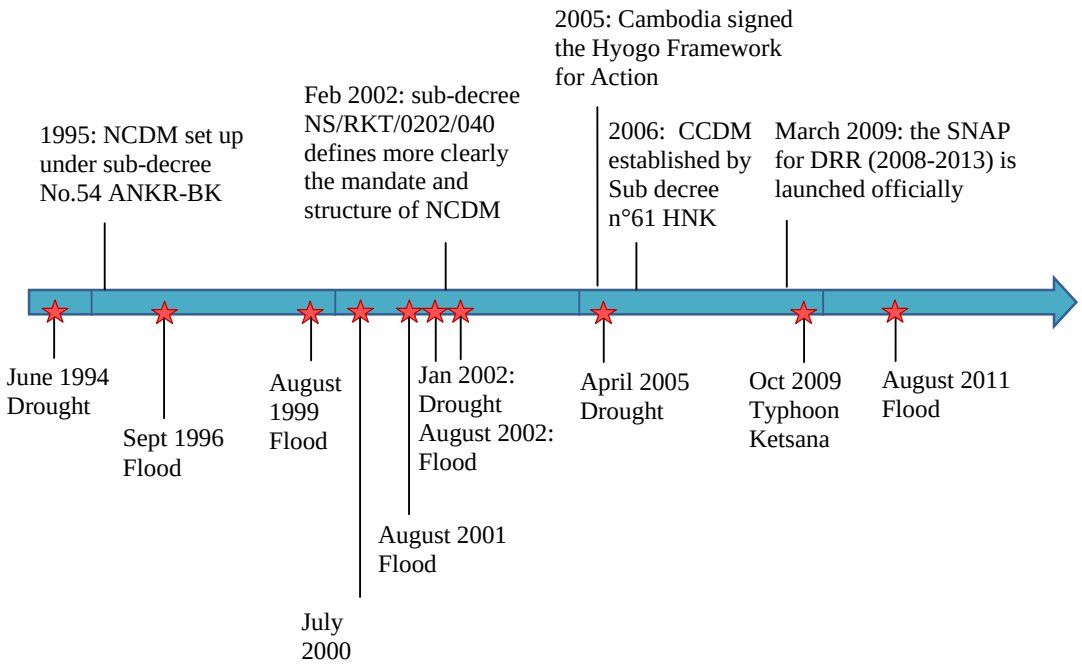
An economy-wide risk assessment has remained as priority that would examine disaster risk to the key economic sectors such as tourism and readymade garments.

2.2 Current strategic directions: lessons and gaps

Cambodia's response to DRR is a home grown concern which is also influenced by international prioritisation of disaster risk since 1991. Although historically some aspects of DRR were embodied in the regular work of some Ministries, the RGC created National Committee for Disaster Management (NCDM) in 1995 under sub-decree No.54 ANKR-BK in response to the growing disaster risk in the country. The NCDM consists of 22 members from various governmental ministries, representatives of the Royal Cambodian Armed Forces, Cambodian Red Cross and Civil Aviation Authority; and it is headed by the Prime Minister. It is supported by a dedicated secretariat[7] to lead and coordinate disaster management affairs in the country. Please see Annex-1 for the organogram of the current disaster management structure in Cambodia.

Following the adoption of Hyogo Framework of Action, Cambodia developed the National Action Plan and Strategy on Disaster Risk Reduction 2008-2013 to deepen its efforts to reduce disaster risks. The following diagram presents the country's disaster management policy development:

[7] NCDM's secretariat is structured by 5 departments: (1) Department of Emergency Response and Rehabilitation, (2) Department of Preparedness and Training, (3) Department of Communications and Relations, (4) Department of Search and Rescue, (5) Department of Administration and Finance. The vertical structure at sub-national level is also developed to support the function of NCDM by forming Provincial Committee for Disaster Management (PCDM), District Committee for Disaster Management (DCDM), Commune Committee for Disaster management (CCDM), and Village Committee for Disaster Management (VCDM).



Source: SNAP Assessment Report 2013.

2.2.1 Paradigm shift from emergency response to DRR is evident but requires consolidation through legal and budgetary processes

The NSDP (update) emphasised roles of various ministries in managing disaster risks. It enshrined disaster issues into the key sectoral plans of selected ministries i.e. Ministry of Agriculture, Ministry of Health, and Ministry of Water Resources and Meteorology (MoWRAM). In line with this, the Ministry of Health[8], Ministry of Education, Youth and Sport, and Ministry of Rural Development have integrated key aspects of DRR, and prepared separate plans. The efforts have been further intensified through formulation of strategic plan on climate change by nine ministries in which DRR is a part. A climate change strategic plan for the 'Disaster Sector' was also developed by NCDM and National Climate Change Committee (NCCCC). The RGC drafted a National Disaster Management Law which has been under review for enactment.

Despite these progresses in planning in recent years, allocation of government's own resources is limited. There are also challenges with staff capacity at NCDM Secretariat and key Ministries. At sub-national levels DRR is still an add-on responsibility of the provincial and district officials. There are technological limitations too in the systematic risk assessment, resilient agriculture and risk mapping. Due to the unavailability of down-scale risk map and prediction, the Ministry of Rural development still relies on local knowledge about past floods.

[8] DRR was partially integrated in the Health sector through for example the pilot program "hospital safe from disasters" (2011)

There is a growing need to make a paradigm shift in the DRR initiatives and resilience. This will require substantial investment from the government's own budget and political prioritisation which may come through clear cost-benefit analysis and evidence based advocacy by NCDM and civil society actors.

Mainstreaming effort for climate change and DRR must go hand in hand, and it should also be included in the project appraisal and approval processes – as well as Environmental and Social Impact Assessment of large scale programmes. Disaster loss and damage were not systematically recorded and maintained in the past. A project is underway with support from UNDP to develop a Disaster Management Information System (DMIS) which has the potential to contribute to the current UNCCC discussions on Loss and Damage. It requires adoption of internationally agreed definition of loss and damage to claim proportionate adaptation fund allocation in the future.

2.2.2 Well established early warning system exists, but requires upgradation in prediction and dissemination

Cambodia has well established institution and technology for flood and storm / typhoon early warning. Two departments under the Ministry of Water Resources and Meteorology (MOWRAM) are mandated to generate and provide early warning for flood and storm: Department of Meteorology (DOM) for storm and weather services, and Department of Hydrology and River Works (DHRW) for the flood forecasting and warning. In East Asia and the Pacific there is already extensive regional cooperation on tropical cyclone forecasting through the World Meteorological Organisation (WMO) Regional Centres. These play a vital role in disaster management being a member of NCDM to assist in decision making for taking prompt actions toward hydro-meteorological induced disasters. It assists the National Climate Change Committee (NCCC) in Cambodia by providing climatological information particularly for climate change projections.

In the context of growing disaster risk, the RGC already considered the need to modernise its early warning system. The flood warning is currently based on the automated and manual river gages covering three days' forecast for five stations along the Mekong mainstream that needs to be expanded to tributaries. A Doppler radar system is installed recently to monitor the storm and weather (UNISDR study). Currently, early warning is disseminated to Government and non-government agencies through fax and electronic media for decision making. Public dissemination is done through the media, Cambodia Red Cross volunteers and CCDM officials at provincial levels. However, dissemination coverage remains limited.

A number of key challenges are already identified that NAP has considered. These include: (i) expansion of flood early warning lead time which can be expanded to seven days with technological improvement; (ii) mechanism for dissemination of early warning information to end-users needs further improvement; (iii) early warning generally does not go with specific disaster management advisory which should be a priority; and (iv) seasonal forecast capabilities should also be improved and properly disseminated to the farmers to make decisions well in advance.

2.2.3 Community based DRR generates innovation but its spread is uneven

DRR activities at community level gained momentum during the SNAP period since 2008. The number of actors engaged in DRR is growing over time together with donor funded projects of the United Nations agencies, bilateral funding agencies and International financial Institutions.

FAO is currently implementing a DIPECHO project (until December 2013), in collaboration with the Ministry of Agriculture, Forest and Fishery (MAFF), with the aim of integrating DRR and climate change adaptation (CCA) into the sector of Agriculture.
While the DRR agenda moved from periphery towards the centre of attention and funding in recent years, its spread remains limited and short term. These initiatives also gave birth to an array of innovative tools and approaches such as contingency planning at local level, small scale mitigation, training, curriculum development, and storm resilient housing technology. In the NAP period, substantial investment needs to be put to consolidate the innovation and creation of approaches that are appropriate to a variety of agro-ecological zones of Cambodia. Building capacity of the Commune Committee for Disaster Management (CCDM) to carry out their own DRR initiatives should also receive urgent priority as a strategy to scale up DRR measures.

2.2.4 Professionalising Disaster Management.

Despite growth of innovative risk reduction approaches and knowledge, disaster management has not been institutionalised as an academic discipline in Cambodia. As a result, the government officials depend on short term capacity and skills building initiatives as part of projects or international cooperation. The NAP has placed significant emphasis on building local capacity on professional training and academic programmes. It planned to support universities to develop curriculum to integrate DRR into their existing disciplines and gradually explore possibilities to offer dedicated courses on disaster management.

Cambodian disaster management lessons and learning are not systematically documented to support academic and knowledge development. The NAP emphasises building and nurturing a learning culture at national and sub-national levels. A DRR forum was established in 2005 by the Cambodian Red Cross and chaired by the NCDM which needs to be formalised, and similar forums need to be created at sub-national levels.

2.2.5 Response and Recovery

Cambodia's capacity to respond to floods is globally well known, and the country has been improving for other disasters. A number of studies in recent past put forward a set of recommendations that NAP-DRR adopted in the plan. These include:

- Further enhancement of sub-national level capacity and resourcing for timely and efficient disaster management;
- Institutional capacity building of NCDM Secretariat for effective coordination of disaster response that includes search and rescue;
- Put in place common definition and methodology for disaster needs assessment in all phases of disasters;
- Inclusion of DRR principles in the post-disaster recovery planning and building capacity of the RGC agencies to do so;
- Institute and nurture disaster management working group (DMWG) in the line Ministries that include dedicated disaster management team, sectoral assessment tools and information management and resource allocation for post-disaster response and recovery; and
- Urban disaster, least recognised and understood, but is a future risk. For example, in June-September 2011 835 millimetres rainfall was recorded (107%) at Phnom Penh.

The disaster management capacity building efforts in 2014-18 should take into account future risks brought by climate change, which can be exacerbated by other developmental factors. By end of 2018, the country will have a total population of XX million, which means that demand

for disaster relief and DRR services will grow. Industrialisation through ASEAN Community taking place in 2015 is most likely to deteriorate the environment and reduce forest cover, and it may result in increased vulnerabilities of the population. Responding to industrial disaster is an area where the RGC also needs to build its capacity, not only because of high causality risk, but also to deal with a significant reputational risk.

2.3 Policy Alignment

The goal and programmes of NAP-DRR is designed to contribute to the sustainable development outcomes of the NSDP 2008-13 that stresses the importance of DRR and climate change: *To effectively deal with the implications of climate change, the capacity of RGC institutions needs to be strengthened to identify and develop a strategy to deal with the anticipated impact of the climate change, and strengthening disaster management capabilities*. NAP-DRR takes into account other sectoral and cross-sectoral priorities including Cambodia Climate Change Response Strategic Plan 2014-2023, that sets out DRR as an important adaptation measure to tackle climate change impact. It is also designed to contribute to the achievements of several other national strategies e.g. National Education Strategic Plan (2009-13), Women Development Plan (Ratanak III (2009-2013), and National Agriculture Strategy. The sectoral climate change strategies developed by key Ministries are important entry points to build synergy between climate change adaptation and DRR.

The NAP-DRR is also aligned with the RGC's regional and international commitments. As in SNAP 2008-13, the key strategic components are derived from the HFA. It is designed as a living document, and thus will be flexible to adopt global priorities and principles that may emerge in the HFA-2 Framework; and some emerging priorities are already included in the plan. Cambodia is a party to the ASEAN Agreement on Disaster Management and Emergency Response (AADMER), the first legally binding agreement established at regional level for emergency response and DRR. The NAP-DRR has fully adopted the AADMER Action Plan of Cambodia.

Section 3: Goal, Outcomes, Strategies and Programmes

3.1 Goal, Outcomes and Strategic Components

3.1.1 Goal

Taking the current and future risk and vulnerability into account, drawing on the key challenges and past achievements, NAP-DRR adopts the following goal to be achieved by 2018:

"Build resilient nation and local communities to pursue sustainable development."

The resilience of nation and local community means that they are better able to withstand crisis or shocks and have enhanced ability to recover from residual impact. This goal is consistent with the current nature and pattern of disaster risks, and the term 'resilience' is already in use in both national and international policy documents, and adopted in the post-HFA agenda. Resilience does not replace existing terms such as strengthening capacity or reduction of vulnerability; rather denotes vulnerability reduction and capacity enhancement in the context of increasing and unpredictable risk. It stresses self-reliance, ability to function well in disaster, reduction in time and resources to recover from disaster, and speed of response to a disaster condition.

3.1.2 Expected Outcomes

Since resilience is a long term goal, the NAP carefully sets, in continuation with achievements in SNAP period, the following eight outcomes for 2014-18:

1. Significant reduction has been achieved in disaster mortality; and social, economic and environmental loss and damage in urban and rural areas as a result of all foreseen and unforeseen hazards.
2. Vulnerable men, women and children in rural, urban, coast and mountain regions are well-informed with capacity to understand current and future risks, and are capable of organising themselves to prepare for, respond to and be resilient to disasters.
3. Cambodia's knowledge and learning on DRR continues to develop.
4. Efficient disaster management institutions are in place with strong leadership, resources and capacity to manage risks at their respective levels.
5. All vulnerable people have access to accurate early warning information with advisory on time.
6. Regular decision making, planning and implementation take account of past and predicted disaster risks.
7. Adequate assistance is given to disaster affected people to recover from disaster impacts.
8. Business continuity approaches have been systematically adopted by national and local businesses communities to make their enterprises resilient to external shocks and disasters, and have plans to recover from losses.

3.1.3 Strategic Components

The objectives set out in the SNAP are still relevant in today's context. Those have been rephrased into the following five strategic components for the NAP-DRR 2014-18.

Strategic Component 1	Consolidating and further enhancing capacity of the disaster management institutions at national, sub-national and local community levels.
Strategic Component 2	Enhancing risk assessment and improving early warning systems.
Strategic Component 3	Development and use of innovation and knowledge to build resilience.
Strategic Component 4	Reduction of the underlying causes of risks.
Strategic Component 5	Enhancing emergency response and recovery capabilities at all levels.

The following are a set of major indicators that should be periodically monitored to understand changes in the overall vulnerability, capacity and disaster risks.

i. Disaster mortality rate in a span of five years (% calculated against total number of disaster affected people in five years, and compared with the % of 2000-2010).
ii. Average expenditure of the disaster affected households on post-disaster recovery (in US$).
iii. Annual growth in paddy production [proxy indicator to GDP loss incurred by disasters] or annual growth of paddy production in the Mekong basin.
iv. Seasonal food insecurity (% of food insecure people in the flood prone areas).

The NCDM will work with the Ministry of Planning to explore how these indicators can be integrated with monitoring and evaluation process of the NSDP 2014-18.

3.2 Programme Framework

3.2.1 Strategic Component 1:

Consolidating and further enhancing capacity of the disaster management institutions at national, sub-national and local community levels.

Governance is an important precondition for successful risk reduction. Consolidating and updating the existing laws, policies and mechanisms related to disaster management are among the important priorities for Cambodia. Major disasters in the past had pushed the country to set up key policy and institutional processes for disaster management. Cambodia has drafted a National Disaster Management Law, which is being updated to be placed for enactment. The NSDP 2008-13 placed emphasis on disaster management by approaching it as a cross-sectoral as well as a priority on its own that warrants specific attention. A great number of ministries e.g. the Ministry of Health, Ministry of Water Resources and Meteorology, Ministry of Rural Development, and Ministry of Education have integrated disaster risk into their regular work. The Cambodia Climate Change Response and Strategic Plan 2014-2023 has also enshrined disaster risk reduction as a key priority to adapt to climate change.

Despite these progresses, the legal and policy processes are still inadequate for the scale of disaster risk in the country. A number of critical gaps and challenges have been identified by

past studies[9] that should be addressed. These include: a) immediate enactment of NDML and subsequent decrees to operationalise it; b) institutional reforms that include additional disaster management structure in the line ministries and dedicated capacity at all levels to lead and manage tasks before, during and after a disasters; c) availability of financial, technical and technological resources at all levels for DRR efforts on large scale; and d) enhancement of accountability mechanisms for implementation of DRR actions at all levels.

At the end of 2014, the country will achieve the following outcomes under Strategic Component 1 of the NAP:

i. An enacted National Disaster Management (NCDM) law with subsequent decrees and sub-decrees to operationalise the Law.
ii. The NCDM Secretariat and disaster management structures at sub-national level have dedicated budget and annual plans to play their roles effectively.
iii. Demonstrated leadership is in place at sub-national level in disaster management by the committees.

Achieving the above-mentioned outcomes will require four dedicated programmes to be implemented during the NAP period i.e.

Programmes for Strategic Component 1

Programme 1	Finalising the draft Disaster Management Law to be enacted by legislative bodies with subsequent decrees and sub-decrees for effective implementation.
Programme 2	Strengthening disaster management institutions at all levels.
Programme 3	Strengthening NCDM Secretariat to play its roles effectively.
Programme 4	Developing a fiscal framework for utilising climate change adaptation fund for DRR.

3.2.2 Strategic Component 2:

Enhancing risk assessment and improving early warning systems.

The NAP emphasises the application of up-to-date scientific knowledge to define various risk scenarios in geographical and temporal scales. It should define the risks to the national economy as well as social and environmental aspects critical to the country so that a long-term investment plan can be worked out. There is also a need to move up from current planning culture based on past disasters to include future risk in the planning. Such a planning process not only requires enhanced human resource capacity and leadership but also technology tailored to the local context. It emphasises professionalising disaster management through involvement of academic and other expert institutions that can offer courses on disaster prevention, management and recovery.

Cambodia's early warning system needs to be modernised and expanded in its forecast, prediction, warning, and communication scope.

At the end of 2018, the country will achieve the following outcomes under Strategic Component 2 of the NAP:

i. Climate change prediction in disaster trends considered in national and sub-national plans.

[9] Independent assessment of SNAP, capacity assessment of NCDM and report of Cambodia's inputs to post-2015 HFA.

ii. Vulnerability of and risk to Cambodian towns and cities along with future urbanisation identified.
iii. Comprehensive risk assessment of industries (especially readymade garments) made available to policy makers.
iv. Early warning on flood and storm with advisory on time received by all vulnerable people.
v. Safe building practices specified by national building code are followed for industries.

Achieving the above mentioned outcomes will require the implementation of four dedicated programmes during the NAP period:

Programmes for Strategic Component 2

Programme 5	Developing climate change integrated disaster risk maps and assessments.
Programme 6	Conducting research on urban and industrial disasters to inform long term planning.
Programme 7	Enhancing river flash floods and drought early warning capabilities with focus on improved technologies and community based dissemination mechanisms.
Programme 8	Strategising proper storm warning dissemination system.

3.2.3 Strategic Component 3:

Development and use of innovation and knowledge to build resilience.

A knowledge based society is an overarching priority for the RGC as realised in NAP-DRR. The country will support and promote necessary scientific research for innovating solutions and technology for different agro-hazard zones.

Scientific community, academicians, and disaster planners in both public and private sectors need to cooperate and network more in order to exchange scientific and operational information for effective DRR decision making. This is an essential basis for promotion and use of scientific information, effective technology and communication. Courses in disaster management when rarely offered by universities and academic institutions--are not comprehensive enough to meet the systemic needs of the present or future.

There is also need to for technological up-gradation to adapt to the changing nature of disaster risk. In the flood plain, many houses are built on raised platforms to safeguard against flood. However, the poor people cannot build such flood resilient houses. Ironically, such adaptations no longer adequately safeguard against increasing storm frequencies.

Disasters pose a threat to access, quality and inclusion of education which are the objectives of the Education Strategic Plan 2009-13 of the Ministry of Education, Youth and Sport (MOEYS). The Climate Change Strategic Plan for Education sets out the key programmes to make education resilient to disasters and climate change. In recent years, the Ministry opted for school buildings with resilient infrastructure but its implementation is limited. Education plays a vital role in promoting a culture of prevention. Complementarily, it is also important to promote voluntarism among students to provide them opportunity to gain practical experience.

By the end of 2018, the country will achieve the following outcomes under Strategic Component 3:

i. Disaster risk reduction plan is considered in education polices and strategic plans.
ii. Scientific and legal definition of loss and damage is adopted and applied to monitor disaster impacts.
iii. Damage to housing and household assets reduced (from storm and flood).

Achieving the above-mentioned outcomes will require four dedicated programmes to be implemented during the NAP period:

Programmes for Strategic Component 3

Programme 9	Ensure **disaster** resilient primary and secondary education.
Programme 10	Professionalising DRR through academic programmes in the universities.
Programme 11	Producing flood and typhoon resilient housing technologies and disseminating to local communities.
Programme 12	Developing efficient disaster information management system, and enhancing international cooperation in knowledge and information sharing.

3.2.4 Strategic Component 4:

Reduction of the underlying causes of risks.

Disasters challenge human development and economic growth. The NAP-DRR puts emphasis on development that is resilient to disasters and climate change. Although additional investment may be necessary at the beginning, mainstreaming DRR in the development process is thus not only efficient but also cost effective.

Effective integration of DRR considerations into national policy, strategy and planning is now preferred internationally. Such integration should include nationally funded programmes as well as multilateral and bilateral cooperation; and donor assisted NGO projects. Lessons from SNAP period suggest that effective mainstreaming requires active consideration of DRR in the projects funded by the Government's own sources or external donors. This is an important step to ensure that project outcomes are truly disaster resilient, and they reduce vulnerabilities. NAP proposes that indicators and methods be developed for screening development projects in the planning and approval processes as well as in EIA and SIA of large scale projects. This may require further capacity enhancement of the planning professionals in the Ministries.

A number of key ministries e.g. Ministries of Education, Health, Water Resources, and Rural Development have already integrated DRR into their work. A number of challenges are identified to further enhance these efforts: i) lack of resources to manage additional cost of resilience building; ii) inadequate capacity of the planning professionals; iii) lack of leadership and dedicated staff for DRR at sub-national level; and iv) limited availability of knowledge and analysis of disaster risk in respective areas. It also requires leadership of different sectors to recognise and understand how disaster can pose threat to their own interests and work.

At the end of 2018, the country will achieve the following outcomes under Strategic Component 4 of the NAP:

i. DRR is integrated into NSDP as an overarching priority.
ii. DRR is included in all sectoril policies and annual plans of ministries at national and sub-national levels as part of their regular activities.
iii. Community level DRR activities are spread to cover all geographical regions facing current and future risk.
iv. Women are included in the disaster management committees.

Achieving the above-mentioned outcomes will require four dedicated programmes to be implemented during the NAP period:

Programmes for Strategic Component 4

Programme 13	Mainstreaming DRR in NSDP, sectoril policies, Ministerial plans with resources for implementation.
Programme 14	Scaling up community level DRR work in all vulnerable regions.
Programme 15	Continuing and expanding research on drought and flood tolerant crop varieties.
Programme 16	Enhancing regional cooperation to manage shared and common hazards through ASEAN Agreement on Disaster Management and Emergency Response (AAMER).

3.2.5 Strategic Component 5:

Enhancing emergency response and recovery capabilities at all levels.

Cambodia has developed tools, systems and financing mechanisms to support response and recovery efforts. Two important studies (FRATTA, Moira. 2013; and Institutional Review and Capacity Assessment of the NCDM, 2013) identified a number of persisting gaps that inform the planning of this component of the NAP.

NCDM will establish three additional departments to perform its role effectively. These include: i) Policy and Planning; ii) Disaster Management Information; and Emergency Coordination.

At the sub-national level, current capacity building support remains limited to only high risk zones (covering only 50% of the provinces). PCDM and DCDM are now managed by staff for whom DRM is an additional responsibility. Hence, dedicated staff should be recruited to manage these functions.

Capacity of the Ministries and sub-national level structures on post-disaster needs assessment and information management needs further enhancement. A common needs assessment system should be developed as part of this process. Countries with similar level of risk get the benefit of Standard Operating Procedure or Standing Order on Disaster. NAP plans to build capacity of all Ministries, Sub-National Institutions to develop their own plan under a single national SoP.

The NAP also underscores recruitment and retention of volunteers, an activity currently managed by Cambodian Red Cross. Disaster recovery requires further strategic investment. There is no monitoring system to evaluate state of recovery after a disaster. Often, both disaster response and recovery miss integrating essential elements of DRR. The NAP aims to promote a learning culture, and NCDM, PCDM and CCDM will utilise the lessons learnt after major disasters to improve knowledge and response capacity.

At the end of 2018, the country will achieve the following outcomes under Strategic Component 5:

i. Disaster affected people receive disaster management services on time.
ii. A comprehensive post-disaster damage and needs assessment is in practice with gender desegregated information.
iii. All key Ministries have capacity to carry out sectoral assessment, and are able to define and implement response and recovery plans.
iv. Time to recover from disaster is reduced.

v. The number of youth volunteers of Cambodian Red Cross is increased in all the vulnerable areas.

Achieving the above-mentioned outcomes will require five dedicated programmes to be implemented during the NAP period:

Programmes for Strategic Component 5

Programme 17	Developing standard operating procedure (SoP) on roles and responsibilities of preparedness, search and rescue, response and recovery involving all stakeholders in line with SoP of Regional Standby Arrangements and Coordination of Joint Disaster Relief and Emergency Response Operations (SASOP).
Programme 18	Develop standard loss, damage and needs assessment systems.
Programme 19	Enhancing coordination capacity in line with ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management (AHA centre).
Programme 20	Designating and/or establishing well-functioning safe areas with adequate facilities for shelter and services for both life and asset protection in all vulnerable areas.
Programme 21	Expand and strengthen youth **v**olunteerism in disaster management throughout the country.

3.3 Planning Matrix

The following table presents the activities under each of the 21 programmes presented above, together with priority, implementation role, timeframe and budget.

Planning Matrix 2014-2018

Goal: Build resilient national and local communities to pursue sustainable development.						
Strategic Component 1: Consolidating and further enhancing capacity of the disaster management institutions at national, sub-national and local community levels.						
Programme	**Broad Activities**	**Priority**	**Timeframe**	**Lead agency**	**Supporting agency**	**Budget (US$)**
C1P1: Finalising the Disaster Management Law to be enacted by legislative bodies with subsequent decrees and sub-decrees for effective implementation.	1.1.1. Finalizing and enacting Disaster Management (DM) Law.	High	2014	NCDM	Advisory Group and Minister of Council	**10,000**
	1.1.2. Disseminating the DM Law to all Line Ministries, DM Committees at sub-national and local levels.	High	2014-15	NCDM	All stakeholders	**100,000**
	1.1.3. Finalize, enact and disseminate National Policy for Emergency Management (NPEM).	High	2014-15	NCDM	MoP/MoI	**15,000**
C1P2: Strengthening disaster management institutions at all levels.	1.2.1 Creating provision of dedicated DM staff in the Ministries and PCDM (to be included in the Law).	High	2018	MoI	NCDM	**200,000**
	1.2.2. Formulating SoP that defines roles and responsibilities of national and sub-national levels actors.	High	2014	NCDM	All Ministries	**150,000**
	1.2.3 Building capacity of the staff of Ministries and sub-national structure on specific areas to support implementation of NAP.	High	2014-2018	NCDM	All Ministries	**500,000**
C1P3. Strengthening NCDM Secretariat to play its roles	1.3.1 Strengthening existing departments and create three new departments in the NCDM Secretariat i.e. Policy and Planning; DMIS; and Emergency Coordination.	High	2014-2018	NCDM	Minister of Council	**50,000**

effectively.	1.3.2 Building capacity of the staff of NCDM on specific areas to support implementation of NAP.	High	2014-18	NCDM		**1,000,000**
	1.3.3 Prepare annual plans and budget for DM.	High	2014-2018	Minister of Council	NCDM	
	1.3.4 Strengthening Inter-ministerial Working Group, and Sub-groups with a defined plan to facilitate integration of DRR into sectoral strategies and plans.	High	2014-18	NCDM	All ministries	
	1.3.5 Existing Disaster Management Working Group in each Ministry with clear roles and responsibilities, based on SoP.	High	2015	NCDM	All Ministry	**10,000**
	1.3.6 Hold quarterly NCDM meeting to review progress of the implementation of NAP.	High	2014-18	NCDM	All Ministry	**6000**
C1P4. Developing a fiscal framework for utilising climate change adaptation and green climate fund for DRR.	1.4.1. Mapping all existing and potential funds to implement the NAP.	High	2014-18	NCDM	Ministry of Economy and Finance and Development Partners	**100,000**
	1.4.2. NCDM and NCCC to agree on mechanism to fund DRR activities from the adaptation fund.	High	2014	NCDM and NCCC	Ministry of Economy and Finance and Development Partners	**20,000**
Strategic Component 2: Enhancing risk assessment and improving early warning systems.						
C2P5: Developing climate change integrated disaster risk maps and assessments.	2.5.1. Preparing short and long term national prediction on disaster risk considering climate change and other factors.	High	2014-15	MoWRAM	MoE, NCDM, MoRD and MoAFF	**300,000**
	2.5.2. Preparing riskmap for all vulnerable provinces and make them available to the planners.	High	2017	NCDM	MoE, MoRD, MoWRAM MoLMU, MoI,	**300,000**
C2P6: Conducting	2.6.1. Conducting a study on risk and vulnerabilities	Medium	2014-2017	MoLMU	NCDM, MoI,	**300,000**

research on urban and industrial disasters to inform long term planning.	to major cities and towns of Cambodia.				MoWRAM, MoPWT	
	2.6.2. Building capacity of the municipalities, local authorities and MoLMU on risk integrated urban planning.	High	2015	MoLMU	NCDM, MoE, MoI, MoPWT	**1,000,000**
	2.6.3. Conducting risk assessment of current and future labour intensive industries	Medium	2015	MoEMI	MoLMU, NCDM,	**25,000**
	2.6.4. Develop standards for safe building practices and to include in the building code.	Medium	2015	MoLMU	NCDM, MoI,	**60,000**
	2.6.5. Develop and implement contingency plan for industrial disaster	Medium	2015-18	MoEMI	NCDM, MoLV, MoI, Private Sector	**1,000,000**
C2P7: Enhancing river flash floods and drought early warning capabilities with focus on improved technologies and community based dissemination mechanisms.	2.7.1. Developing and implementing a plan to install flood monitoring infrastructure and repair the existing one, to cover entire river systems.	High	2014-18	MoWRAM	CNMC, MRC and WMO	**1,000,000**
	2.7.2. Upgrading technical capability to enhance accuracy and lead of flood forecasting and EW.	High	2016	MoWRAM	CNMC, MRC and WMO, NCDM	**200,000**
	2.7.3. Developing and implementing a plan to enhance early warning dissemination to the vulnerable communities and sub-national level disaster management institutions.	High	2016	MoWRAM	CNMC, MRC and WMO, NCDM	**200,000**
	2.7.4. Establishing cell-broadcast (mobile technology) to disseminate EW to the public.	Medium	2014-16	NCDM	Ministry of Information, Telecommunication companies	**5,000**
	2.7.5. Develop standard and livelihood specific advisory for flood and drought early warning based on short and long term prediction.	High	2015	NCDM	MoA, MoRD, PCDM and other ministries	**10,000**
	2.7.6. Implementation of the flash flood guidelines in Cambodia.	High	2014-16	NCDM	MRC, CNMC and MoWRAM	**100,000**
C2P8: Strategising proper storm	2.8.1. Formulating and implementing a plan to improve storm warning (considering climate	High	2015	MoWRAM	NCDM	**250,000**

warning dissemination system.	change impacts on the region)					
	2.8.2. Developing standard advisory for storm warning	High	2015	MoWRAM	NCDM, MoA, MoRD, PCDM	**20,000**
Strategic Component 3: Development and use of innovation and knowledge to build resilience.						
C3P9: Ensure **disaster** resilient primary and secondary education. .	3.9.1 Disseminate and implement the school construction guidelines.	High	2014	MoEYS	NCDM	**250,000**
	3.9.2 Identify number of schools at risk and include them in the construction plan of MoEYS	High	2014-18	MoEYS	NCDM	
	3.9.3 Inclusion of DRR into Education Strategic Plan.	High	2014	MoEYS	NCDM	
	3.9.4 Inclusion of DRR into the curriculum of all grades of primary and secondary schools.	High	Ongoing	MoEYS	NCDM	**100,000**
	3.9.5 Developing preparedness/contingency plan in all schools in the disaster-prone areas, according to guideline.	High	2014-18	MoEYS	NCDM	**500,000**
	3.9.6 Prepare guideline for the teacher on DRR.	High	2014-16	MoEYS	NCDM	**100,000**
C3P10: Professionalising DRR through academic programmes in the universities.	3.10.1. Formulate a plan to include DRR into academic programme of the selected universities.	Medium	2014-18	MoEYS	NCDM and universities	**10,000**
	3.10.2. Developing specific curriculum for general and technical universities (agriculture, environment, medical) to include courses in regular masters and bachelor programme.	Medium	2016-18	MoEYS	NCDM relevant line ministries and Private sectors	**500,000**
C3P11: Producing flood and typhoon resilient housing technologies and disseminating to local communities.	3.11.1. Researching on disaster resilient house construction technology.	High	2016	MoLMU	NCDM	**150,000**
	3.11.2. Implementing a technology transfer programme for the resilient housing (guidelines, capacity building, training for the carpenters, public awareness etc,)	High	2017	MoLMU	Sub-national line departments	**500,000**
C3P12: Developing efficient disaster information	3.12.1. Develop and Implement Disaster Management Information system include guideline or appropriate information	High	2014	NCDM	MoPWT; MoWRAM MRD MoInfo	**100,000**

management system, and enhancing international cooperation in knowledge and information sharing.	challenels.				MoI	
	3.12.2. Participate in the regional and international forums, conferences on DRR		Ongoing	NCDM and relevant agencies		**100,000**
	3.12.3. Maintaining NCDM website	High	2014	NCDM	All agencies	**25,000**
Strategic Component 4: Reduction of the underlying causes of risks.						
C4P13: Mainstreaming DRR in NSDP, sectoril policies, Ministerial plans with resources for implementation.	4.13.1. Conducting policy research, social and economic risk assessment—and hold policy dialogue on a regular basis	High	Ongoing	NCDM	Ministries and stakeholders	**100,000**
	4.13.2. Conducting study on economic and social cost of disaster with cost benefit analysis of DRR measures for evidence based advocacy.	Medium	2014	MoP	NCDD, NCDM and concerned Ministries	**100,000**
	4.13.3. Capacity building of the planning unit of the Ministries and officials of sub-national institutions on preparation of specific DRR proposal and risk integrated annual plans	High	Ongoing	NCDM	All Ministries	**125,000**
	4.13.4. Developing indicators for assessment of risk—and gradually become part of NSDP	Medium	2015	MoP	NCDM and Stakeholders	**25,000**
	4.13.5. Integrating DRR into national and sectoral strategy and plan—and implement the plans.	High	On-going	MoP	All Ministries and NCDM	**50,000,000**
	4.13.6. Developing DRR indicators to be included in the existing project development, review and approval process and procedures.	Medium	2015	MoP	NCDM	**50,000**
C4P14: Scaling up community level DRR work in all vulnerable regions.	4.14.1. Developing and implementing a DRR scaling up plan at community level.	High	Ongoing	NCDM	All ministries	**50,000,000**
	4.14.2. Creating provision to upscale CBDRR from national budget and adaptation fund (PPCR, adaption Fund and Green Climate Fund)	High	2014	MoE	NCDM and NCCC	**5,000**

C4P15: Continuing and expanding research on drought and flood tolerant crop varieties.	4.15.1. Identify knowledge gaps and research agenda on climate resilient agriculture.	High	2014-18	MoA		**300,000**
C4P16: Enhancing regional cooperation to manage shared and common hazards through ASEAN Agreement on Disaster Management and Emergency Response (AAMER).	4.16.1. Implementing AADMER national actionplan.	High	**2014-18**	NCDM	All ministries	**300,000**
Strategic Component 5: Enhancing emergency response and recovery capabilities at all levels.						
C5P17: Developing standard operating procedure (SoP) on roles and responsibilities of preparedness, search and rescue, response and recovery involving all stakeholders in line with SoP of Regional Standby Arrangements and Coordination of Joint Disaster	5.17.1. Developing SoP for preparedness, search and rescue, response and recovery	High	2014	NCDM	All stakeholders	**100,000**
	5.17.2. Conducting annual national and sub-national simulation of the SoP	Medium	Ongoing	NCDM	All stakeholders	**1,800,000**
	5.17.3. Develop, implement and update contingency plan at national, provincial, district and commune levels.	High	Ongoing	NCDM	All stakeholders	**1,000,000**

Relief and Emergency Response Operations (SASOP).						
C5P18: Develop standard loss, damage and needs assessment systems.	5.18.1. Develop a simplified and comprehensive loos, damage and needs assessment format (common and sectoral)	High	2014	NCDM	MoE	50,000
	5.18.2. Building capacity of the stakeholders on conducting, compiling and reporting on needs assessment at provincial levels	High	2014-15	NCDM	Ministries and PCDM	1,000,000
C5P19: Enhancing coordination capacity in line with ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management (AHA centre).	5.19.1. Equipping national emergency coordination centre with modern communication equipment.	High	2015	NCDM	MoInfo and Private sector	1,000,000
	5.19.2. Establishing Emergency coordination centre in all vulnerable provinces	High	2018	NCDM	Ministries	Included in 5.19.1
	5.19.3. Increasing staff capacity at NCDM to coordinate with humanitarian response	High	2014-18	NCDM	Ministries and CRC	Included in 1.3.1
C5P20: Designating and/or establishing well-functioning safe areas with adequate facilities for shelter and services for both life and asset protection in all vulnerable areas.	5.20.1. Identify and upgrade the facilities in the existing safe areas comfortable for men, women and children.	High	2015	NCDM	PCDM, NGO and MoRD	**50,000,000**
	5.20.2. Develop a policy for maintaining and retain community ownership over the safe grounds.	High	2015	NCDM	DRR Forum	**20,000**
	5.20.3. Conducting a scoping study to identify appropriate community flood shelter for Cambodia in the context of climate change.	Medium	2016	University of Technology	NCDM	**100,000**

Programme 21: Expand and strengthen youth **v**olunteerism in disaster management throughout the country.	5.21.1. Expanding volunteer and youth network throughout the country.	High	Ongoing	CRC	NCDM and NCCC	**1,000,000**
	5.21.2. Capacity building of the volunteers on regular basis.	High	ongoing	CRC	NCDM and NCCC	

Section 4: Implementation Plan

4.1 General Considerations for Implementation

The NAP-DRR emphasises deepening risk reduction and resilience building approaches through multi-stakeholder and multi-sectoral principles. Implementation of the 21 programmes and corresponding activities shall have implications for current capacity, roles and responsibilities, policy and legal issues, resource mobilisation, and institutional structures. Some of these issues have been identified and planned in this document. However, the RGC should proactively identify and address these issues to achieve the goal.

The NAP-DRR considers both current and future risks which cannot be tacked in the next five years. Therefore, the RGC will adopt a phased approach to address the long-term risks such as typhoon, sea level rise, etc.

The NCDM will remain as the primary responsible actor to facilitate the implementation of the plan. The related plans and activities will be implemented by all stakeholders with differential responsibilities at different stages.

- The **lead implementing agencies** as assigned in the planning table will be the overall accountability holder to accomplish an activity. These agencies will plan, mobilise and allocate resources, seek technical advice from other relevant agencies and implement them in a timely manner. They will also report to the NCDM on the progress of implementation.
- The **supporting agencies** will mobilise technical inputs and resources, exchange information, and support the lead agency to implement the activities.

Partnership of stakeholders is a prerequisite for the implementation of the plan. Timely achievement of the goal will require broadening the constituency of stakeholders beyond the conventional DRR actors and engage actors working on sectors, and population groups such as women, children, ethnic minorities, people with disabilities (PWDs) and people with HIV/AIDS, as well as actors working at community level and national and international policy and advocacy. At the local level, engagement of community based organisations and traditional leaders are important for long term and sustainable capacity building.

Disaster management is not a sector, but it is more of a factor to sectoral development. Professionalising disaster management thus needs to be adopted as a means to make Cambodia disaster resilient. Therefore, promotion of leadership and human resource development received great attention in the plan.

Vulnerabilities to disasters and climate change can be either common or shared; so strategy to climate change adaption and DRR should go hand in hand. This is also cost effective. Utilisation of adaptation fund to implement the DRR activities through a fiscal framework will be explored.

Regional and international cooperation in knowledge, technology and financing will be pursued as important preconditions for successful implementation of the plan.

4.2 Institutional Mechanism, and Roles and Responsibilities

Through the enactment of Disaster Management Law, the NCDM Secretariat will have access to dedicated resources and staff to implement the plan. The RGC will gradually allocate dedicated staff time for the sub-national level PCDM and DCDM who will be key locus for the implementation of the plan at their respective levels.

Each ministry will have DRR working groups in line with the NSDP. Possibilities will be explored by NCDM and NCCC to find common approaches for mainstreaming DRR and climate change.

Each of the programmes outlined in this plan shall become a project of one or more Ministry in partnership with other stakeholders and development partners of the RGC. The NCDM should rollout the action plan and make it available to all levels in Khemar; and acquire appropriate capacity to support the ministries in designing the projects and guide them in resource mobilisation and implementation.

The development partners, particularly bilateral, multilateral institutions and international financing institutions (IFIs) should align their plan and strategy with NAP-DRR.

Mainstreaming DRR into the overall and sectoral policies, plans and programmes are both means and an outcome of the action plan. Responsible ministries should develop appropriate specific programmes. This will solve part of resourcing problems, but the RGC needs to increase investment from national budget. The NCDM Secretariat together with its partners will develop evidence based advocacy initiatives to sustain political commitment for DRR.

Due to the overarching nature of the plan that cuts across all the Ministries and stakeholders, following are the general implementation roles and responsibilities:

- **NCDM Secretariat**: It will provide the overall leadership to coordinate the implementation of the plan. This includes supporting the Ministries to integrate the activities into their annual plan through management of technical advice, and production of guidelines. The NCDM Secretariat should also support the Ministries to mobilise necessary financial, technical and technological resources.
- **PCDM and DCDM**: They will be responsible for integrating the NAP-DRR gradually into their annual development and investment plans. They will mobilise provincial level stakeholders to monitor the progress of the implementation, conduct periodic reviews and ensure relevance of the plan.
- **Ministries**: The Ministries will first form the Disaster Management Working Group, and unpack the plan and activities for their respective sectors. All strategies, action plans and annual plans will be designed in such a way that integrates the NAP-DRR principles and programmes. The Ministries will also establish national and international partnerships for technical cooperation and resource mobilisation.
- **Private Sector:** Private sector will become an active partner of the implementation of the plan. Planning matrix has specific activities for the private sector. NCDM and Ministries will engage and support the private sector to play its role that also includes resource mobilistaion.

- **UN Agencies**: The UN agencies will gradually integrate the DRR issues into the United Nations Development Assistance Framework (UNDAF). During the NAP-DRR period, the technical, financial and operational cooperation between the RGC and the UN will continue to grow.
- **National and International NGOs**: NGOs play important roles in the implementation of the community based DRR activities. They will work with the NCDM Secretariat to develop outreach strategies to cover the locations that are vulnerable to current and future disasters. They will also play important roles with the NCDM Secretariat in the advocacy for resource mobilisation, facilitate knowledge management and take part in the monitoring and evaluation of the NAP-DRR.
- **Donor agencies and IFIs:** Bilateral donor agencies, the World Bank, and Asian Development Bank have been the key partners for the implementation of SNAP. Such roles of these agencies will continue.
- **Academic Institutions:** Research institutions and universities will take over the research, knowledge development, technical innovation and academic programme component of the plan. They will also establish national, regional and international partnerships for exchange of knowledge, technical cooperation and resource mobilisation.
- **Media:** Media will support the implementation of the plans by playing two important roles. First, it will continue supporting public awareness raising and by improving its reporting capacity. Second, it will also help in facilitating exchange of information, dissemination of early warning and support in monitoring the NAP-DRR.

4.3 Planned Expenditure and Resource Mobilization

Implementation of NAP-DRR will require US$ 166 Million over 2014-2018. This investment is cost-efficient, and is a conservative estimation. This investment will save recovery and reconstruction costs up to US$ 1.7 billion in next 10 years, based on the current annual average loss of and damage of US$ 170 Million. In addition, this investment will also contribute to steady growth of GDP, help improving the country's export and investment environment, and reduce poverty.

Table 2: Planned Expenditure 2014-18 by Strategic Components

Investment Item	Planned Expenditure
Strategic Component 1	2,161,000
Strategic Component 2	4,770,000
Strategic component 3	2,335,000
Strategic Component 4	101,005,000
Strategic Component 5	56,070,000
Total	166,341,000

Three sources of resources are available to implement the plan. First is the RGC's own resources that are already allocated through annual budgetary process, and will grow for DRR and climate change adaptation during the NAP-DRR period. Second is the development cooperation though bilateral and multilateral sources. Third is the adaptation fund and Green Climate Fund, although uncertainty remains around its volume and timeframe, but increasingly will become available to the country. The RGC has a plan to establish a National Fund for Climate Change that may be an important source of funding in the

future. The NCDM Secretariat will work out possibilities with the NCCC Secretariat to channel some of the climate change finding to support implementation of the DRR activities at sub-national level.

4.4 Monitoring, review and reporting

Monitoring, review and reporting should be considered as on-going and periodic processes in implementing the action plan. The NCDM Secretariat will determine appropriate procedures for reviewing progress against the goal, outcomes and strategic component along with the corresponding programmes. Priority will also be given to monitoring vulnerability and risk based on selected indicators (Table 2).

Table 3: List of Indicators for M&E of NAP-DRR

Level	Indicators
Build resilient national and local communities to pursue sustainable development	i. Disaster mortality rate in a span of five years (% calculated against total number of disaster affected people in five years, and compared with the % of 2000-2010). ii. Average expenditure of the disaster affected households on post-disaster recovery (in US$) or average household loss and damage incurred over five years (in US$). iii. Annual growth in paddy production [proxy indicator to GDP loss incurred by disasters] or annual growth of paddy production in the Mekong basin. iv. Seasonal food insecurity (% of food insecure people in the flood prone areas).
Outcome Level Indicators	
Strategic Component 1	1. Evidence of DRR initiatives taken by sub-national level committees. 2. Increase in the number of DRR projects funded from climate change adaptation fund (# of project and US$ allocated). 3. Level of satisfaction of Ministries over the technical and advisory services by the NCDM Secretariat.
Strategic Component 2.	4. Availability of provincial level risk maps to the Ministries and sub-national level line departments (# of Provinces with maps). 5. Coverage of river gaging system or statistical accuracy of lead time at 72 hours. 6. People with disability receiving early warning information (% of people, compared to 2000s figure).
Strategic Component 3	7. Primary school attendance of girls and boys during the flood time (%) or average number of school day closure during flood time (# at national level and per Province). 8. Increased number of government officials trained on DRR (%). 9. Integration of disaster risk management into university curriculum (# of universities). 10. Reduction in damage to house and business establishments in rural and urban areas (# of houses and businesses).
Strategic Component 4	11. Disaster risk to key sectors identified and included in the policies and plans (# of policies / plans). 12. Provincial plans developed considering risk to all hazards (# of Provinces) 13. Disaster risks to key economic sectors are identified (# of sectoral risks assessed). 14. Allocation of national budget for DRR (US$). 15.
Strategic Component 5	16. Reduction in post-disaster distress selling of assets (# of households). 17. School attendance of students (proxy to recovery assuming that if households take longer to recover results in engagement of children in income activities).

Level	Indicators
	18. Availability of gender desegregated assessment information. 19. Communities with functional safe places (# of villages). 20. Communities with active volunteers (# of villages).

Understanding of the progress would require information from wide range government ministries and other stakeholders. The DRR Platform should play the role of locus to produce, review and discuss the progress; and also determine remaining gaps to be addressed.

To support this process, the existing DMIS will include specific indicators in line with the NAP-DRR indicators so that information can be collected, maintained and analysed to understand progress. Submission of reports on progress review of HFA has now become an annual process. This process should be expanded to review the progress of the framework as well. The NCDM Secretariat should work with the Ministry of Planning to explore the strategy to enshrine the NAP's indicators into the NSDP 2014-18.

Table 3: Main M&E actions for NAP-DRR.

M&E Actions	Frequency	Responsibility	Supporting Agency
Reporting on outcome level indicators, progress and lessons	Annual, gets integrated with HFA Monitor	NCDM Secretariat	All lead agencies, UNDMT and DRR Forum
Mid-term review in 2016 (should also include components from HFA)	At mid-point of the plan	NCDM Secretariat	
Final evaluation / impact assessment	In the fifth year of the plan	Ministry of Planning	NCDM Secretariat

4.5 Conclusion

The document will be translated into Khemar and printed to ensure that all stakeholders have copies throughout its implementation period. As a living document, it should maintain its relevance by incorporating new lessons, issues and policy agenda throughout the implementation period. The NAP-DRR will be gradually incorporated into the NSDP.

Annexes

Annex 1: Glossary Terms and concepts

UNISDR Terminology on Disaster Risk Reduction (2009)

Introduction

The UNISDR Terminology aims to promote common understanding and common usage of disaster risk reduction concepts and to assist the disaster risk reduction efforts of authorities, practitioners and the public. The previous version "Terminology: Basic terms of disaster risk reduction" was published in "Living with risk: a global review of disaster risk reduction initiatives" in 2004. The following year, the Hyogo Framework for Action 2005-2015 requested the UNISDR secretariat to "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 institutions development, operations, research, training curricula and public information programmes".

The 2009 version is the result of a process of ongoing review by the UNISDR and consultations with a broad range of experts and practitioners in various international venues, regional discussions and national settings. The terms are now defined by a single sentence. The comments paragraph associated with each term is not part of the definition, but is provided to give additional context, qualification and explanation. It should be noted that the terms are not necessarily mutually exclusive, and in some cases may have overlapping meanings.

The Terminology has been revised to include words that are central to the contemporary understanding and evolving practice of disaster risk reduction but exclude words that have a common dictionary usage. Also included are a number of emerging new concepts that are not in widespread use but are of growing professional relevance; these terms are marked with a star (*) and their definition may evolve in future. The English version of the 2009 Terminology provides the basis for the preparation of other language versions. Comments and suggestions for future revisions are welcome and should be directed to the ISDR Secretariat (see www.unisdr.org).

Acceptable risk

The level of potential losses that a society or community considers acceptable given existing social, economic, political, cultural, technical and environmental conditions.

Comment: In engineering terms, acceptable risk is also used to assess and define the structural and non-structural measures that are needed in order to reduce possible harm to people, property, services and systems to a chosen tolerated level, according to codes or "accepted practice" which are based on known probabilities of hazards and other factors.

Adaptation

The adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

Comment: This definition addresses the concerns of climate change and is sourced from the secretariat of the United Nations Framework Convention on Climate Change (UNFCCC). The broader concept of adaptation also applies to non-climatic factors such as soil erosion or surface subsidence. Adaptation can occur in autonomous fashion, for example through market changes, or as a result of intentional adaptation policies and plans. Many disaster risk reduction measures can directly contribute to better adaptation.

Biological hazard

Process or phenomenon of organic origin or conveyed by biological vectors, including exposure to pathogenic micro-organisms, toxins and bioactive substances that may cause loss of life, injury, illness or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: Examples of biological hazards include outbreaks of epidemic diseases, plant or animal contagion, insect or other animal plagues and infestations.

Building code

A set of ordinances or regulations and associated standards intended to control aspects of the design, construction, materials, alteration and occupancy of structures that are necessary to ensure human safety and welfare, including resistance to collapse and damage.

Comment: Building codes can include both technical and functional standards. They should incorporate the lessons of international experience and should be tailored to national and local circumstances. A systematic regime of enforcement is a critical supporting requirement for effective implementation of building codes.

Capacity

The combination of all the strengths, attributes and resources available within a community, society or organization that can be used to achieve agreed goals.

Comment: Capacity may include infrastructure and physical means, institutions, societal coping abilities, as well as human knowledge, skills and collective attributes such as social relationships, leadership and management. Capacity also may be described as capability. Capacity assessment is a term for the process by which the capacity of a group is reviewed against desired goals, and the capacity gaps are identified for further action.

Capacity Development

The process by which people, organizations and society systematically stimulate and develop their capacities over time to achieve social and economic goals, including through improvement of knowledge, skills, systems, and institutions.

Comment: Capacity development is a concept that extends the term of capacity building to encompass all aspects of creating and sustaining capacity growth over time. It involves learning and various types of

training, but also continuous efforts to develop institutions, political awareness, financial resources, technology systems, and the wider social and cultural enabling environment.

Climate change

(a) The Inter-governmental Panel on Climate Change (IPCC) defines climate change as: "a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use".

(b) The United Nations Framework Convention on Climate Change (UNFCCC) defines climate change as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods".

Comment: For disaster risk reduction purposes, either of these definitions may be suitable, depending on the particular context. The UNFCCC definition is the more restricted one as it excludes climate changes attributable to natural causes. The IPCC definition can be paraphrased for popular communications as "A change in the climate that persists for decades or longer, arising from either natural causes or human activity."

Contingency planning

A management process that analyses specific potential events or emerging situations that might threaten society or the environment and establishes arrangements in advance to enable timely, effective and appropriate responses to such events and situations.

Comment: Contingency planning results in organized and coordinated courses of action with clearly-identified institutional roles and resources, information processes, and operational arrangements for specific actors at times of need. Based on scenarios of possible emergency conditions or disaster events, it allows key actors to envision, anticipate and solve problems that can arise during crises. Contingency planning is an important part of overall preparedness. Contingency plans need to be regularly updated and exercised.

Coping capacity

The ability of people, organizations and systems, using available skills and resources, to face and manage adverse conditions, emergencies or disasters.

Comment: The capacity to cope requires continuing awareness, resources and good management, both in normal times as well as during crises or adverse conditions. Coping capacities contribute to the reduction of disaster risks.

Corrective disaster risk management *

Management activities that address and seek to correct or reduce disaster risks which are already present.

Comment: This concept aims to distinguish between the risks that are already present, and which need to be managed and reduced now, and the prospective risks that may develop in future if risk reduction policies are not put in place. See also Prospective risk management.

Critical facilities

The primary physical structures, technical facilities and systems which are socially, economically or operationally essential to the functioning of a society or community, both in routine circumstances and in the extreme circumstances of an emergency.

Comment: Critical facilities are elements of the infrastructure that support essential services in a society. They include such things as transport systems, air and sea ports, electricity, water and communications systems, hospitals and health clinics, and centres for fire, police and public administration services.

Disaster

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

Comment: Disasters are often described as a result of the combination of: the exposure to a hazard; the conditions of vulnerability that are present; and insufficient capacity or measures to reduce or cope with the potential negative consequences. Disaster impacts may include loss of life, injury, disease and other negative effects on human physical, mental and social well-being, together with damage to property, destruction of assets, loss of services, social and economic disruption and environmental degradation.

Disaster risk

The potential disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or a society over some specified future time period.

Comment: The definition of disaster risk reflects the concept of disasters as the outcome of continuously present conditions of risk. Disaster risk comprises different types of potential losses which are often difficult to quantify. Nevertheless, with knowledge of the prevailing hazards and the patterns of population and socio-economic development, disaster risks can be assessed and mapped, in broad terms at least.

Disaster risk management

The systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster.

Comment: This term is an extension of the more general term "risk management" to address the specific issue of disaster risks. Disaster risk management aims to avoid, lessen or transfer the adverse effects of hazards through activities and measures for prevention, mitigation and preparedness.

Disaster risk reduction

The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.

Comment: A comprehensive approach to reduce disaster risks is set out in the United Nations-endorsed Hyogo Framework for Action, adopted in 2005, whose expected outcome is "The substantial reduction of disaster losses, in lives and the social, economic and environmental assets of communities and countries." The International Strategy for Disaster Reduction (ISDR) system provides a vehicle for cooperation among Governments, organisations and civil society actors to assist in the implementation of the Framework. Note that while the term "disaster reduction" is sometimes used, the term "disaster risk reduction" provides a better recognition of the ongoing nature of disaster risks and the ongoing potential to reduce these risks.

Disaster risk reduction plan *

A document prepared by an authority, sector, organization or enterprise that sets out goals and specific objectives for reducing disaster risks together with related actions to accomplish these objectives.

Comment: Disaster risk reduction plans should be guided by the Hyogo Framework and considered and coordinated within relevant development plans, resource allocations and programme activities. National level plans needs to be specific to each level of administrative responsibility and adapted to the different social and geographical circumstances that are present. The time frame and responsibilities for implementation and the sources of funding should be specified in the plan. Linkages to climate change adaptation plans should be made where possible.

Early warning system

The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss.

Comment: This definition encompasses the range of factors necessary to achieve effective responses to warnings. A people-centred early warning system necessarily comprises four key elements: knowledge of the risks; monitoring, analysis and forecasting of the hazards; communication or dissemination of alerts and warnings; and local capabilities to respond to the warnings received. The expression "end-to-end warning system" is also used to emphasize that warning systems need to span all steps from hazard detection through to community response.

Ecosystem services

The benefits that people and communities obtain from ecosystems.

Comment: This definition is drawn from the Millennium Ecosystem Assessment. The benefits that ecosystems can provide include "regulating services" such as regulation of floods, drought, land degradation and disease, along with "provisioning services" such as food and water, "supporting services" such as soil formation and nutrient cycling, and "cultural services" such as recreational, spiritual, religious and other non-material benefits. Integrated management of land, water and living resources that promotes conservation and sustainable use provide the basis for maintaining ecosystem services, including those that contribute to reduced disaster risks.

El Niño-Southern Oscillation phenomenon

A complex interaction of the tropical Pacific Ocean and the global atmosphere that results in irregularly occurring episodes of changed ocean and weather patterns in many parts of the world, often with significant impacts over many months, such as altered marine habitats, rainfall changes, floods, droughts, and changes in storm patterns.

Comment: The El Niño part of the El Niño-Southern Oscillation (ENSO) phenomenon refers to the well-above-average ocean temperatures that occur along the coasts of Ecuador, Peru and northern Chile and across the eastern equatorial Pacific Ocean, while La Niña part refers to the opposite circumstances when well-below-average ocean temperatures occur. The Southern Oscillation refers to the accompanying changes in the global air pressure patterns that are associated with the changed weather patterns experienced in different parts of the world.

Emergency management

The organization and management of resources and responsibilities for addressing all aspects of emergencies, in particular preparedness, response and initial recovery steps.

Comment: A crisis or emergency is a threatening condition that requires urgent action. Effective emergency action can avoid the escalation of an event into a disaster. Emergency management involves plans and institutional arrangements to engage and guide the efforts of government, non-government, voluntary and private agencies in comprehensive and coordinated ways to respond to the entire spectrum of emergency needs. The expression "disaster management" is sometimes used instead of emergency management.

Emergency services

The set of specialized agencies that have specific responsibilities and objectives in serving and protecting people and property in emergency situations.

Comment: Emergency services include agencies such as civil protection authorities, police, fire, ambulance, paramedic and emergency medicine services, Red Cross and Red Crescent societies, and specialized emergency units of electricity, transportation, communications and other related services organizations.

Environmental degradation

The reduction of the capacity of the environment to meet social and ecological objectives and needs.

Comment: Degradation of the environment can alter the frequency and intensity of natural hazards and increase the vulnerability of communities. The types of human-induced degradation are varied and include land misuse, soil erosion and loss, desertification, wildland fires, loss of biodiversity, deforestation, mangrove destruction, land, water and air pollution, climate change, sea level rise and ozone depletion.

Environmental impact assessment

Process by which the environmental consequences of a proposed project or programme are evaluated, undertaken as an integral part of planning and decision-making processes with a view to limiting or reducing the adverse impacts of the project or programme.

Comment: Environmental impact assessment is a policy tool that provides evidence and analysis of environmental impacts of activities from conception to decision-making. It is utilized extensively in national programming and project approval processes and for international development assistance projects. Environmental impact assessments should include detailed risk assessments and provide alternatives, solutions or options to deal with identified problems.

Exposure

People, property, systems, or other elements present in hazard zones that are thereby subject to potential losses.

Comment: Measures of exposure can include the number of people or types of assets in an area. These can be combined with the specific vulnerability of the exposed elements to any particular hazard to estimate the quantitative risks associated with that hazard in the area of interest.

Extensive risk *

The widespread risk associated with the exposure of dispersed populations to repeated or persistent hazard conditions of low or moderate intensity, often of a highly localized nature, which can lead to debilitating cumulative disaster impacts.

Comment: Extensive risk is mainly a characteristic of rural areas and urban margins where communities are exposed to, and vulnerable to, recurring localised floods, landslides storms or drought. Extensive risk is often associated with poverty, urbanization and environmental degradation. See also "Intensive risk".

Forecast

Definite statement or statistical estimate of the likely occurrence of a future event or conditions for a specific area.

Comment: In meteorology a forecast refers to a future condition, whereas a warning refers to a potentially dangerous future condition.

Geological hazard

Geological process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: Geological hazards include internal earth processes, such as earthquakes, volcanic activity and emissions, and related geophysical processes such as mass movements, landslides, rockslides, surface collapses, and debris or mud flows. Hydrometeorological factors are important contributors to some of these processes. Tsunamis are difficult to categorize; although they are triggered by undersea earthquakes and other geological events, they are essentially an oceanic process that is manifested as a coastal water-related hazard.

Greenhouse gases

Gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation of thermal infrared radiation emitted by the Earth's surface, the atmosphere itself, and by clouds.

Comment: This is the definition of the Intergovernmental Panel on Climate Change (IPCC). The main greenhouse gases (GHG) are water vapour, carbon dioxide, nitrous oxide, methane and ozone.

Hazard

A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: The hazards of concern to disaster risk reduction as stated in footnote 3 of the Hyogo Framework are "… hazards of natural origin and related environmental and technological hazards and risks." Such hazards arise from a variety of geological, meteorological, hydrological, oceanic, biological, and technological sources, sometimes acting in combination. In technical settings, hazards are described quantitatively by the likely frequency of occurrence of different intensities for different areas, as determined from historical data or scientific analysis.

See other hazard-related terms in the Terminology: Biological hazard; Geological hazard; Hydrometeorological hazard; Natural hazard; Socio-natural hazard; Technological hazard.

Hydrometeorological hazard

Process or phenomenon of atmospheric, hydrological or oceanographic nature that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: Hydrometeorological hazards include tropical cyclones (also known as typhoons and hurricanes), thunderstorms, hailstorms, tornados, blizzards, heavy snowfall, avalanches, coastal storm surges, floods including flash floods, drought, heatwaves and cold spells. Hydrometeorological conditions also can be a factor in other hazards such as landslides, wildland fires, locust plagues, epidemics, and in the transport and dispersal of toxic substances and volcanic eruption material

Intensive risk *

The risk associated with the exposure of large concentrations of people and economic activities to intense hazard events, which can lead to potentially catastrophic disaster impacts involving high mortality and asset loss.

Comment: Intensive risk is mainly a characteristic of large cities or densely populated areas that are not only exposed to intense hazards such as strong earthquakes, active volcanoes, heavy floods, tsunamis, or major storms but also have high levels of vulnerability to these hazards. See also "Extensive risk."

Land-use planning

The process undertaken by public authorities to identify, evaluate and decide on different options for the use of land, including consideration of long term economic, social and environmental objectives and the implications for different communities and interest groups, and the subsequent formulation and promulgation of plans that describe the permitted or acceptable uses.

Comment: Land-use planning is an important contributor to sustainable development. It involves studies and mapping; analysis of economic, environmental and hazard data; formulation of alternative land-use decisions; and design of long-range plans for different geographical and administrative scales. Land-use planning can help to mitigate disasters and reduce risks by discouraging settlements and construction of key installations in hazard-prone areas, including consideration of service routes for transport, power, water, sewage and other critical facilities.

Mitigation

The lessening or limitation of the adverse impacts of hazards and related disasters.

Comment: The adverse impacts of hazards often cannot be prevented fully, but their scale or severity can be substantially lessened by various strategies and actions. Mitigation measures encompass engineering techniques and hazard-resistant construction as well as improved environmental policies and public awareness. It should be noted that in climate change policy, "mitigation" is defined differently, being the term used for the reduction of greenhouse gas emissions that are the source of climate change.

National platform for disaster risk reduction

A generic term for national mechanisms for coordination and policy guidance on disaster risk reduction that are multi-sectoral and inter-disciplinary in nature, with public, private and civil society participation involving all concerned entities within a country.

Comment: This definition is derived from footnote 10 of the Hyogo Framework. Disaster risk reduction requires the knowledge, capacities and inputs of a wide range of sectors and organisations, including United Nations agencies present at the national level, as appropriate. Most sectors are affected directly or indirectly by disasters and many have specific responsibilities that impinge upon disaster risks. National platforms provide a means to enhance national action to reduce disaster risks, and they represent the national mechanism for the International Strategy for Disaster Reduction.

Natural hazard

Natural process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: Natural hazards are a sub-set of all hazards. The term is used to describe actual hazard events as well as the latent hazard conditions that may give rise to future events. Natural hazard events can be characterized by their magnitude or intensity, speed of onset, duration, and area of extent. For example, earthquakes have short durations and usually affect a relatively small region, whereas droughts are slow to develop and fade away and often affect large regions. In some cases hazards may be coupled, as in the flood caused by a hurricane or the tsunami that is created by an earthquake.

Preparedness

The knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions.

Comment: Preparedness action is carried out within the context of disaster risk management and aims to build the capacities needed to efficiently manage all types of emergencies and achieve orderly transitions from response through to sustained recovery. Preparedness is based on a sound analysis of disaster risks and good linkages with early warning systems, and includes such activities as contingency planning, stockpiling of equipment and supplies, the development of arrangements for coordination, evacuation and public information, and associated training and field exercises. These must be supported by formal institutional, legal and budgetary capacities. The related term "readiness" describes the ability to quickly and appropriately respond when required.

Prevention

The outright avoidance of adverse impacts of hazards and related disasters.

Comment: Prevention (i.e. disaster prevention) expresses the concept and intention to completely avoid potential adverse impacts through action taken in advance. Examples include dams or embankments that eliminate flood risks, land-use regulations that do not permit any settlement in high risk zones, and seismic engineering designs that ensure the survival and function of a critical building in any likely earthquake. Very often the complete avoidance of losses is not feasible and the task transforms to that of mitigation. Partly for this reason, the terms prevention and mitigation are sometimes used interchangeably in casual use.

Prospective disaster risk management *

Management activities that address and seek to avoid the development of new or increased disaster risks.

Comment: This concept focuses on addressing risks that may develop in future if risk reduction policies are not put in place, rather than on the risks that are already present and which can be managed and reduced now. See also Corrective disaster risk management.

Public awareness

The extent of common knowledge about disaster risks, the factors that lead to disasters and the actions that can be taken individually and collectively to reduce exposure and vulnerability to hazards.

Comment: Public awareness is a key factor in effective disaster risk reduction. Its development is pursued, for example, through the development and dissemination of information through media and educational channels, the establishment of information centres, networks, and community or participation actions, and advocacy by senior public officials and community leaders.

Recovery

The restoration, and improvement where appropriate, of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors.

Comment: The recovery task of rehabilitation and reconstruction begins soon after the emergency phase has ended, and should be based on pre-existing strategies and policies that facilitate clear institutional responsibilities for recovery action and enable public participation. Recovery programmes, coupled with the heightened public awareness and engagement after a disaster, afford a valuable opportunity to develop and implement disaster risk reduction measures and to apply the "build back better" principle.

Residual risk

The risk that remains in unmanaged form, even when effective disaster risk reduction measures are in place, and for which emergency response and recovery capacities must be maintained.

Comment: The presence of residual risk implies a continuing need to develop and support effective capacities for emergency services, preparedness, response and recovery together with socio-economic policies such as safety nets and risk transfer mechanisms.

Resilience

The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.

Comment: Resilience means the ability to "resile from" or "spring back from" a shock. The resilience of a community in respect to potential hazard events is determined by the degree to which the community has the necessary resources and is capable of organizing itself both prior to and during times of need.

Response

The provision of emergency services and public assistance during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected.

Comment: Disaster response is predominantly focused on immediate and short-term needs and is sometimes called "disaster relief". The division between this response stage and the subsequent recovery stage is not clear-cut. Some response actions, such as the supply of temporary housing and water supplies, may extend well into the recovery stage.

Retrofitting

Reinforcement or upgrading of existing structures to become more resistant and resilient to the damaging effects of hazards.

Comment: Retrofitting requires consideration of the design and function of the structure, the stresses that the structure may be subject to from particular hazards or hazard scenarios, and the practicality and costs of different retrofitting options. Examples of retrofitting include adding bracing to stiffen walls, reinforcing pillars, adding steel ties between walls and roofs, installing shutters on windows, and improving the protection of important facilities and equipment.

Risk

The combination of the probability of an event and its negative consequences.

Comment: This definition closely follows the definition of the ISO/IEC Guide 73. The word "risk" has two distinctive connotations: in popular usage the emphasis is usually placed on the concept of chance or possibility, such as in "the risk of an accident"; whereas in technical settings the emphasis is usually placed on the consequences, in terms of "potential losses" for some particular cause, place and period. It

can be noted that people do not necessarily share the same perceptions of the significance and underlying causes of different risks.

See other risk-related terms in the Terminology: Acceptable risk; Corrective disaster risk management; Disaster risk; Disaster risk management; Disaster risk reduction; Disaster risk reduction plans; Extensive risk; Intensive risk; Prospective disaster risk management; Residual risk; Risk assessment; Risk management; Risk transfer.

Risk assessment

A methodology to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability that together could potentially harm exposed people, property, services, livelihoods and the environment on which they depend.

Comment: Risk assessments (and associated risk mapping) include: a review of the technical characteristics of hazards such as their location, intensity, frequency and probability; the analysis of exposure and vulnerability including the physical social, health, economic and environmental dimensions; and the evaluation of the effectiveness of prevailing and alternative coping capacities in respect to likely risk scenarios. This series of activities is sometimes known as a risk analysis process.

Risk management

The systematic approach and practice of managing uncertainty to minimize potential harm and loss.

Comment: Risk management comprises risk assessment and analysis, and the implementation of strategies and specific actions to control, reduce and transfer risks. It is widely practiced by organizations to minimise risk in investment decisions and to address operational risks such as those of business disruption, production failure, environmental damage, social impacts and damage from fire and natural hazards. Risk management is a core issue for sectors such as water supply, energy and agriculture whose production is directly affected by extremes of weather and climate.

Risk transfer

The process of formally or informally shifting the financial consequences of particular risks from one party to another whereby a household, community, enterprise or state authority will obtain resources from the other party after a disaster occurs, in exchange for ongoing or compensatory social or financial benefits provided to that other party.

Comment: Insurance is a well-known form of risk transfer, where coverage of a risk is obtained from an insurer in exchange for ongoing premiums paid to the insurer. Risk transfer can occur informally within family and community networks where there are reciprocal expectations of mutual aid by means of gifts or credit, as well as formally where governments, insurers, multi-lateral banks and other large risk-bearing entities establish mechanisms to help cope with losses in major events. Such mechanisms include insurance and re-insurance contracts, catastrophe bonds, contingent credit facilities and reserve funds, where the costs are covered by premiums, investor contributions, interest rates and past savings, respectively.

Socio-natural hazard *

The phenomenon of increased occurrence of certain geophysical and hydrometeorological hazard events, such as landslides, flooding, land subsidence and drought, that arise from the interaction of natural hazards with overexploited or degraded land and environmental resources.

Comment: This term is used for the circumstances where human activity is increasing the occurrence of certain hazards beyond their natural probabilities. Evidence points to a growing disaster burden from such hazards. Socio-natural hazards can be reduced and avoided through wise management of land and environmental resources.

Structural and non-structural measures

Structural measures: Any physical construction to reduce or avoid possible impacts of hazards, or application of engineering techniques to achieve hazard-resistance and resilience in structures or systems;

Non-structural measures: Any measure not involving physical construction that uses knowledge, practice or agreement to reduce risks and impacts, in particular through policies and laws, public awareness raising, training and education.

Comment: Common structural measures for disaster risk reduction include dams, flood levies, ocean wave barriers, earthquake-resistant construction, and evacuation shelters. Common non-structural measures include building codes, land use planning laws and their enforcement, research and assessment, information resources, and public awareness programmes. Note that in civil and structural engineering, the term "structural" is used in a more restricted sense to mean just the load-bearing structure, with other parts such as wall cladding and interior fittings being termed non-structural.

Sustainable development

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Comment: This definition coined by the 1987 Brundtland Commission is very succinct but it leaves unanswered many questions regarding the meaning of the word development and the social, economic and environmental processes involved. Disaster risk is associated with unsustainable elements of development such as environmental degradation, while conversely disaster risk reduction can contribute to the achievement of sustainable development, through reduced losses and improved development practices.

Technological hazard

A hazard originating from technological or industrial conditions, including accidents, dangerous procedures, infrastructure failures or specific human activities, that may cause loss of life, injury, illness or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: Examples of technological hazards include industrial pollution, nuclear radiation, toxic wastes, dam failures, transport accidents, factory explosions, fires, and chemical spills. Technological hazards also may arise directly as a result of the impacts of a natural hazard event.

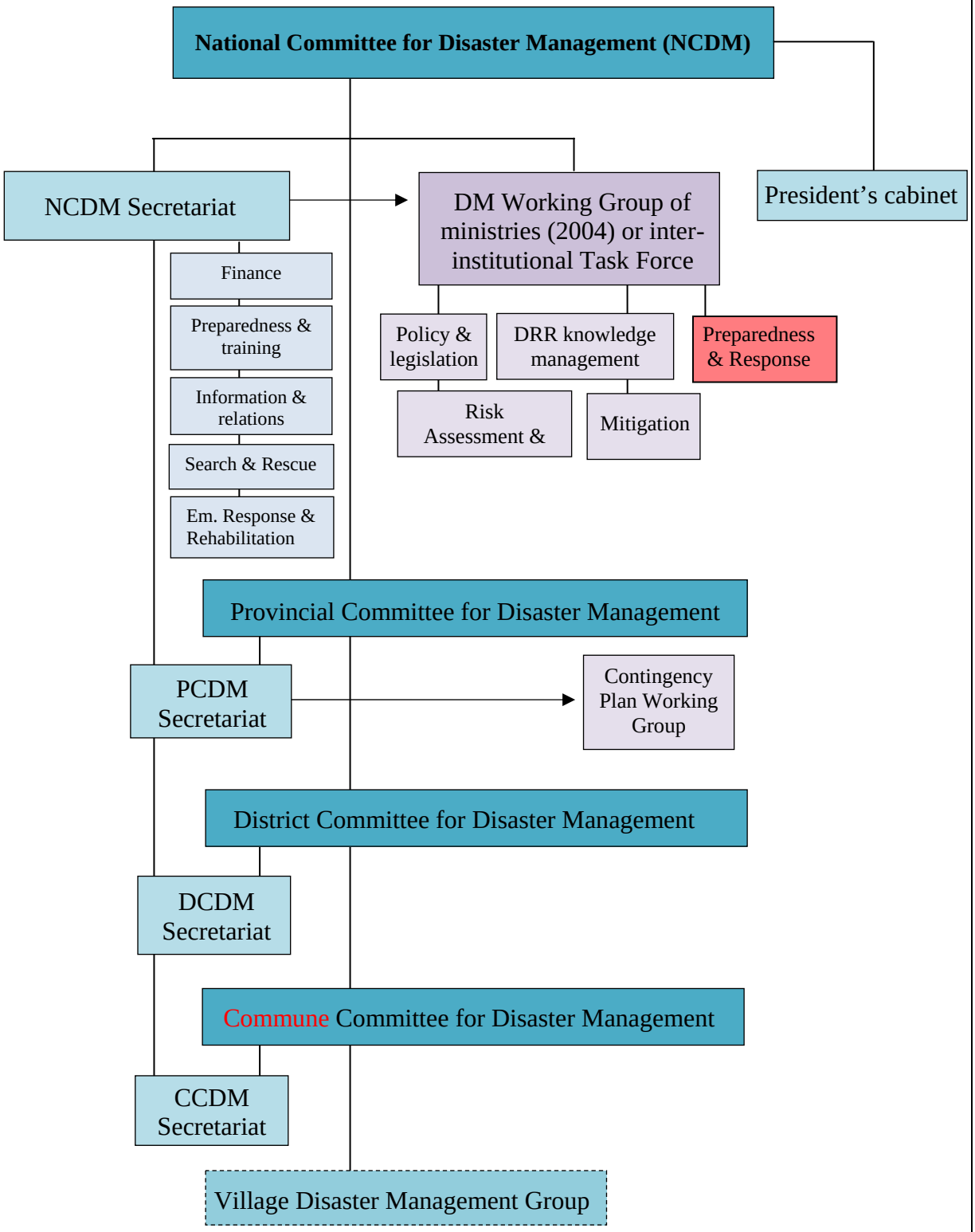
Vulnerability

The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.

Comment: There are many aspects of vulnerability, arising from various physical, social, economic, and environmental factors. Examples may include poor design and construction of buildings, inadequate protection of assets, lack of public information and awareness, limited official recognition of risks and preparedness measures, and disregard for wise environmental management. Vulnerability varies significantly within a community and over time. This definition identifies vulnerability as a characteristic of the element of interest (community, system or asset) which is independent of its exposure. However, in common use the word is often used more broadly to include the element's exposure.

** Emerging new concepts that are not in widespread use but are of growing professional relevance; the definition of these terms remain to be widely consulted upon and may change in future.*

Annex 2: National Committee for Disaster Management Structure



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