



THE REPUBLIC OF THE UNION OF MYANMAR

Myanmar Action Plan on Disaster Risk Reduction (MAPDRR) 2012



Ministry of Social Welfare, Relief and Resettlement
Relief and Resettlement Department

Myanmar Action Plan on Disaster Risk Reduction (MAPDRR) 2012



Ministry of Social Welfare, Relief and Resettlement,
Relief and Resettlement Department



Supported by
Asian Disaster Preparedness Center (ADPC)

Table of Contents

Table of Contents	i
List of Tables and Figures	iii
Abbreviations and acronyms	iv

Chapter: 1 Disaster Management in Myanmar

1.1	Introduction	1
1.2	Hazard Profile of Myanmar	1
1.3	Institutional Arrangement for Disaster Management in the Republic of the Union of Myanmar	3
1.4	Global and Regional Disaster Risk Reduction Commitments by Myanmar.....	5
1.5	Post-Nargis Processes	6
1.6	Stocktaking of past and ongoing work on Disaster Management/ Disaster Risk Reduction in Myanmar	6
1.7	MAPDRR: Process of Development	8

Chapter: 2 MAPDRR components and future Disaster Risk Reduction projects

2.1	Goals and Objectives	9
2.2	Overview of MAPDRR Components.....	9
2.3	Components and Sub-components of MAPDRR.....	11
	<i>Component 1: Policy, Institutional arrangements and further Institutional Development.....</i>	<i>11</i>
	<i>Component 2: Hazard, Vulnerability and Risk Assessment</i>	<i>16</i>
	<i>Component 3: Multi-hazard Early Warning Systems</i>	<i>25</i>
	<i>Component 4: Preparedness and Response Programs at National, State, Division, District & Township Levels</i>	<i>32</i>
	<i>Component 5: Mainstreaming of Disaster Risk Reduction into Development and Mitigation.....</i>	<i>45</i>
	<i>Component 6: Community based Disaster Preparedness and Risk Reduction.....</i>	<i>59</i>
	<i>Component 7: Public Awareness, Education and Training</i>	<i>67</i>

Chapter: 3 Actions to be taken for the implementation of MAPDRR

3.1	Myanmar Disaster Preparedness Agency (MDPA) to Steer and Guide Implementation.....	76
3.2	Role of Task Force and Working Groups in providing Technical Support for Implementation of MAPDRR.....	76
3.3	Partnership with UN Agencies, Regional Bodies, Professional Associations and NGOs	76

3.4	Funding requirement and Resource Mobilisation	77
3.5	Implementation of Priority Sub-components.....	77
3.6	Periodic Review by Task Force.....	77
3.7	Inclusive approach	78
3.8	Periodic Reporting to MDPA.....	78
3.9	Linkages with On-going Developmental Programmes.....	78
3.10	Systematic implementation of MAPDRR	78

Annexure

I	Collection of Information for Myanmar Action Plan on Disaster Risk Reduction (Questionnaire)	80
II	List of Agencies which provided information on Past, On-going and Future DRR Projects	82
III	Composition of the MAPDRR Task Force	84
IV	Composition of MAPDRR Working Groups	85

List of Tables & Figures

Tables

1.	Overview of Past and On-going DRR Projects	7
2.	Component-wise numbers of projects and its linkage to HFA & AADMER.....	9
3.	List of disaster risk reduction Components and Sub-components/projects.....	10
4.	Component 1: Policy, Institutional arrangements and further Institutional development	14
5.	Component 2: Hazard, vulnerability and risk assessment	19
6.	Component 3: Multi-hazard Early Warning Systems	28
7.	Component 4: Preparedness and Response Programs at National, State, Division, District & Township levels.....	37
8.	Component 5: Mainstreaming of Disaster Risk Reduction into Development	51
9.	Component 6: Community based Disaster Preparedness and Risk Reduction	63
10.	Component 7: Public Awareness, Education and Training.....	72
11.	Rehabilitation and Reconstruction sub-committee of DPMWC.....	76

Figure

1	Institutional Framework for Myanmar Disaster Preparedness Agency, Management Working Committee and Sub-Committee	4
---	---	---

Acronyms and Abbreviations

AADMER	:	ASEAN Agreement on Disaster Management and Emergency Response
ACDM	:	ASEAN Committee on Disaster Management
ACF	:	Action Contre La Faim
ADPC	:	Asian Disaster Preparedness Center
AMCDRR	:	Asian Ministerial Conference on Disaster Risk Reduction
ASEAN	:	Association of South East Asian Nations
CBDRR	:	Community Based Disaster Risk Reduction
CBI	:	Capacity Building Initiative
DMH	:	Department of Meteorology and Hydrology
DIA	:	Disaster Impact Assessment
DRR	:	Disaster Risk Reduction
DWRIRS	:	Department of Water Resources and Improvement of River System
ERAT	:	Emergency Rapid Assessment Team
FAO	:	Food and Agriculture Organization
FREDA	:	Forest Resource Environment Development and Conservation Association
GAD	:	General Administration Department
HCT	:	Humanitarian Country Team
HFA	:	Hyogo Framework for Action
ICIMOD	:	International Centre for Integrated Mountain Development
IOC	:	Intergovernmental Oceanographic Commission
JEN	:	Japan Emergency NGO
JICA	:	Japan International Cooperation Agency
KOICA	:	Korea International Cooperation Agency
LWF	:	Lutheran World Federation
MAPDRR	:	Myanmar Action Plan on Disaster Risk Reduction
MDPA	:	Myanmar Disaster Preparedness Agency
MEC	:	Myanmar Earthquake Committee
MES	:	Myanmar Engineering Society
MGS	:	Myanmar Geosciences Society
MIMU	:	Myanmar Information Management Unit
MNPED	:	Ministry of National Planning and Economic Development
MOAI	:	Ministry of Agriculture and Irrigation
MRCS	:	Myanmar Red Cross Society
MSWRR	:	Ministry of Social Welfare, Relief and Resettlement
MPT	:	Myanmar Posts and Telecommunications
NAPA	:	National Adaption Programmes of Action
NGO	:	Non-Government Organization
PTC	:	Panel on Tropical Cyclone
PONJA	:	Post-Nargis Joint Assessment
PONREPP	:	Post-Nargis Recovery and Preparedness Plan
RCC	:	Regional Consultative Committee

RIMES	:	Regional Integrated Multi-hazard Early Warning System
RRD	:	Relief and Resettlement Department
SC	:	Save the Children
SLRD	:	Settlement and Land Records Department
TCG	:	Tripartite Core Group
UN	:	United Nations
UNDP	:	United Nations Development Programme
UNEP	:	United Nations Environment Programme
UNESCAP	:	United Nations Economic and Social Commission for Asia and the Pacific
UNESCO	:	United Nations Educational, Scientific and Cultural Organization
UNFPA	:	United Nations Population Fund
UN-HABITAT	:	United Nations Human Settlements Programme
UNHCR	:	Office of the United Nations High Commissioner for Refugees
UNOCHA	:	United Nations Office for the Coordination of Humanitarian Affairs
UNV	:	United Nations Volunteers
WCDR	:	World Conference on Disaster Reduction
WFP	:	World Food Programme
WHO	:	World Health Organization
WV	:	World Vision
YTU	:	Yangon Technological University

Chapter 1 : Disaster Management in Myanmar¹

1.1 Introduction

Myanmar is exposed to multiple natural hazards which include Cyclone, Storm surge, Floods, Landslide, Earthquake, Tsunami, Drought, Fire and Forest Fire. Its coastal regions are exposed to cyclones, storm surges and tsunamis while major parts of the country are at risk from earthquakes and fires. The rainfall-induced flooding is a recurring phenomenon across the country while some parts of the country is exposed to landslide and drought risks. As per the data from 2000-2001 to 2009-2010², fires constituted about 73% of reported disaster events, followed by floods (11%), storms (12%) and others (4%) including earthquakes, tsunami and landslides. The Cyclone Nargis (2008) was the worst natural disaster in the living memory of Myanmar.

While the Republic of the Union of Myanmar is striving for a peaceful, modern and developed nation, natural disasters destroy the developmental gains and hinder the developmental interventions. The preparedness and mitigation should be an integral part of the development plans and programmes. It is also important to make prior arrangement for relief, rehabilitation and reconstruction activities, in case a natural disaster strikes.

The Republic of the Union of Myanmar is committed to disaster risk reduction and it has systems and procedures at National, State/Region, District, Township, Wards and Village Tracts levels for Disaster Management. Furthermore, the **Myanmar Disaster Preparedness Agency** was constituted on 20 April, 2011 to take the systematic preparedness measures for the disasters which can occur from time to time in the country and to undertake the quick and effective activities on relief and support during the disaster. And to coordinate effectively among the countries in south east Asia and the Pacific region on search and rescue, and to lay down and implement the national search and rescue measures, the **Myanmar National Search and Rescue Committee** was also constituted on 20 April, 2011.

1.2 Hazard Profile of Myanmar

The summary of nine natural hazards of Myanmar is as follows (Details are in the report titled '*Hazard Profile of Myanmar*³):

Cyclone: Myanmar is prone to cyclones and April, May and October to December are considered to be cyclone months as per last 100 years record. In the last four decades, seven major cyclones hit Myanmar; 1968 (Sittwe cyclone), 1975 (Patheingyi cyclone), 1982 (Gwa cyclone), 1994 (Maundaw cyclone), 2006 (Mala cyclone), 2007 (Akash cyclone), 2008 (Nargis cyclone) and 2010 (Cyclone Giri). The Sittwe cyclone led to a loss of 1037 lives,

¹ This document is translation of the Myanmar Action Plan on Disaster Risk Reduction in Myanmar language

² Relief and Resettlement Department

³ Prepared by Irrigation Department, Forest Department, Department of Meteorology and Hydrology, Relief and Resettlement Department, Fire Services Department, Myanmar Engineering Society, Myanmar Geosciences Society, Myanmar Information Management Unit and Asian Disaster Preparedness Center

Patheingyi cyclone claimed 304 lives and Nargis, the most devastating in the living memory of Myanmar, resulted in 84,537 deaths, 53,836 persons missing, affected 2.4 million population, and damage and loss of approximately 11.7 trillion Kyats (4.1 billion USD). The Cyclone Giri in 2010 also claimed 58 lives.

Storm surge: The coastal regions of Ayeyarwady Region and Rakhine State are prone to storm surge. During Cyclone Nargis, 90 percent of deaths were caused as a direct consequence of the storm surge.

Floods: Floods in the past, led to loss of lives and properties, damage to critical infrastructure, economic loss and health related problems such as outbreak of water borne diseases when lakes, ponds and reservoirs get contaminated. Myanmar receives practically all its rainfall between mid-May and October, during which flooding is common. The riverine floods are common in the river delta while the flash floods and landslides are frequent in upper reaches of the river systems, which are normally the mountainous areas. In the cities and towns, localized floods occur from time to time.

Landslide: The landslides of various scale occur in mountainous regions especially in the Western, Southern and Eastern Highland of Myanmar. The Western ranges have experienced all types of landslide and earth movement such as rock falls, rock slides, soil avalanche and mud flow. Due to sparse population, the direct impact of landslide in this region damaged infrastructure rather than human settlement.

Earthquake: Myanmar can be divided in 3 seismically active regions namely the Northwestern Region, the Central Lowland and the Shan Plateau-Yunnan Region. During the 20th Century, at least 18 large earthquakes had happened along the Central Lowland where the well-known Sagaing Fault (1000km) passing through. Another large seismogenic fault called Kyaukkayan Fault about 500 km long is in the western part of the Shan Plateau. The largest measured earthquake in Myanmar is 8.0 Richter Scale, which occurred on the northern segment of this fault on 23 May 1912. Myanmar was hit by an earthquake of 6.8 Richter Scale on 24th March 2011 in Shan State.

Tsunami: The 2,400 kilometers coastline of Myanmar can be divided in three regions namely Rakhine coastal area in northwest, Ayeyarwady Delta in middle, and Taninthayi coastal area in the south. The intensity of the tsunami in terms of round-up and the extent of the inundation was comparatively lower than other countries during 2004 Indian Ocean Tsunami as indicated by the computed tsunami amplitudes. The amplitudes are slightly larger off the Ayeyarwady delta, because the shallow delta extending offshore caused increment of tsunami wave amplitude.

Dry zone/Drought: The Dry zone of Myanmar is located in central part of the country in Magway, Mandalay and Sagaing Regions (lower part) across 54 Townships in 13 Districts and covers approximately 10 percent of total area of the country. It falls under arid to semi-arid zone and the average annual precipitation is below 40 inches.

Fire: The Fire hazard is the most frequent hazard in Myanmar. The high incidences of fire cases are concentrated mainly in Yangon, Mandalay, Ayeyarwady, Sagaing and Bago, which accounts for 63 percent of the total fire cases. January to May is the high season for fires and average annual fire cases are 900, which leads to loss of lives and properties.

Forest Fire: The forest fires in Myanmar are normally surface fire, most frequent during the dry season, starting around December until May. It occurs in almost all States and Regions though sporadic, however more common in upland regions namely Bago, Chin, Kayah, Kachin, Mandalay, Rakhine and Shan. It causes haze problem which leads to negative impact on the community.

1.3 Institutional arrangement for Disaster Management in the Republic of the Union of Myanmar

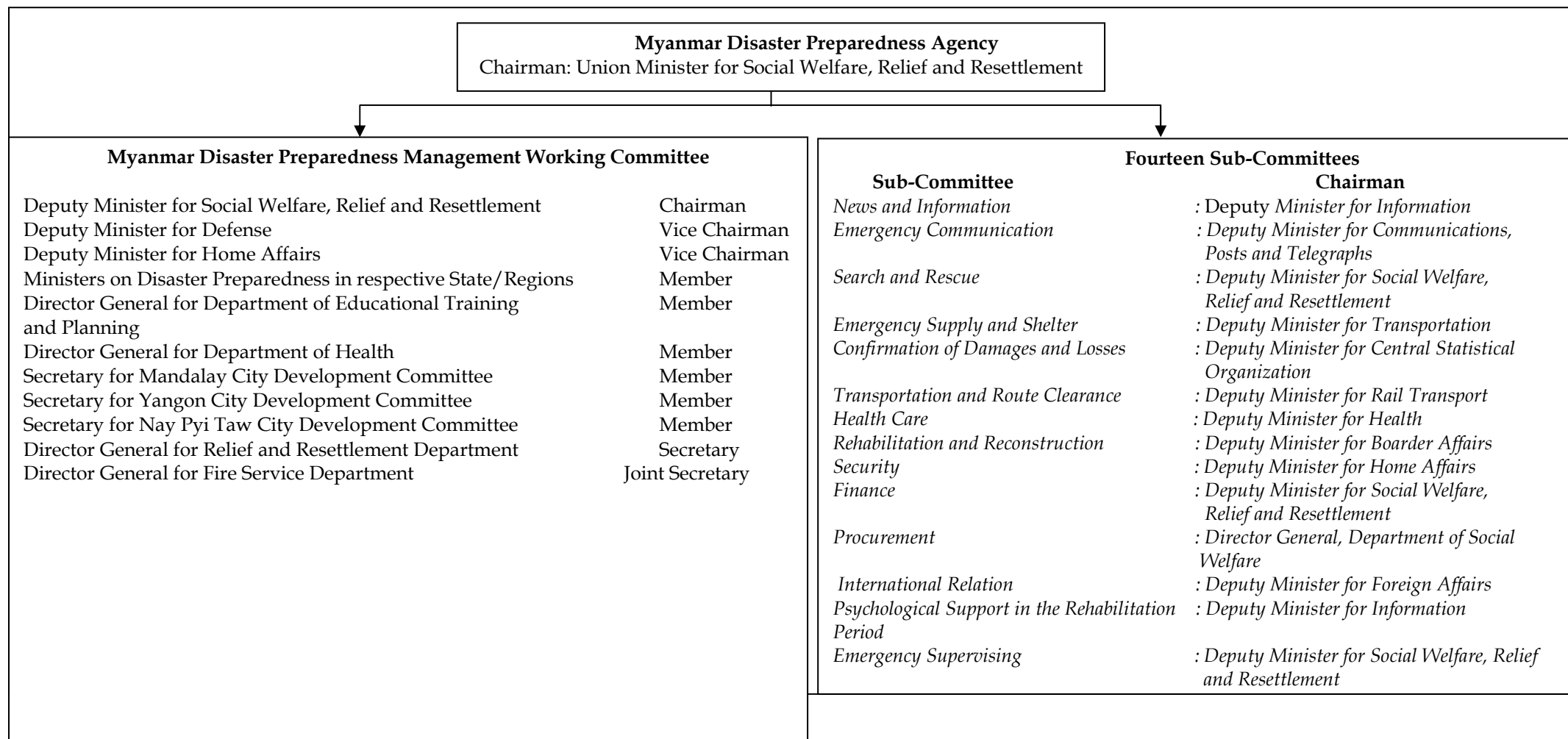
Myanmar Disaster Preparedness Agency: The Myanmar Disaster Preparedness Agency [MDPA], under the chairmanship of the Union Minister for Social Welfare, Relief and Resettlement, is the 13-member body for Disaster Management. The Union Minister for Defense and the Union Minister for Home Affairs are Co-Chairs and the Deputy Ministers of concerned ministries are members of the Agency. The Deputy Minister of MSWRR is the Secretary while Director General, Relief and Resettlement is the Joint Secretary of the Agency.

Also, an Advisory Committee comprising government and non-government members have been constituted to provide technical support to the Myanmar Disaster Preparedness Agency.

Management Working Committee and Sub-Committees of MDPA: The 11-member Management Working Committee under the chairmanship of the Deputy Minister for Social Welfare, Relief and Resettlement is constituted to supervise the implementation of Disaster Management activities in accordance with guidelines of MDPA and also to coordinate the activities of MDPA. The Deputy Minister for Defense and Deputy Minister for Home Affairs are Co-Chairmen and the Director General, Relief and Resettlement Department and the Director General, Fire Services Department are Secretary and Joint-Secretary of the committee respectively.

Fourteen Sub-Committees, have also been constituted for effective implementation of activities laid down by it. This apart, each Ministry has constituted its Executive Committee for Disaster Management. The overall institutional framework for Disaster Management at national level is at figure 1.

Figure: 1 Institutional Framework for Myanmar Disaster Preparedness Agency, Management Working Committee and Sub-Committees



Region/State level Agency: The Region and State Disaster Preparedness Agencies have been constituted at Region and State level respectively. These agencies are formed with the officials from respective Regions and States to carry out the specific tasks under Disaster Management. The Sub-Committees (varies among Region, State) and/or Working Committees have also constituted.

Sub-Region/Sub-State level Agencies: The District, Township and Village Tract Disaster Preparedness Agencies have been constituted at district, township and village tract levels respectively. To undertake the activities of the Disaster Preparedness Agencies at different levels, the Sub-committees are instituted.

1.4 Global and Regional Disaster Risk Reduction Commitments by Myanmar

The Republic of the Union of Myanmar is committed to various global and regional Frameworks and Declarations on Disaster Management and Disaster Risk Reduction. Along with 168 other countries, Myanmar has endorsed the Hyogo Framework for Action [HFA]; the outcome document of the World Conference on Disaster Reduction (WCDR) held in Kobe, Japan in 2005. It is committed to implement the five Priorities for Action under HFA, to achieve a substantial reduction in disaster losses in terms of lives and social, economic and environmental assets.

Myanmar is an active participant in the Asian Ministerial Conferences on Disaster Risk Reduction (AMCDRR), which provides a forum for Ministers in charge of Disaster Management from the Asia and Pacific region, to reaffirm their commitment to HFA implementation.

Myanmar is an active member of the ASEAN Committee on Disaster Management (ACDM) established in early 2003. As Chair of the ACDM in 2009, Myanmar organized the 13th ACDM meeting in Nay Pyi Taw, Myanmar in February 2009. The ACDM organized, constituted and deployed, for the first time, its ASEAN Emergency Rapid Assessment Team (ERAT) in the aftermath of Cyclone Nargis.

The ASEAN Agreement on Disaster Management and Emergency Response (AADMER)⁴ provides a regional comprehensive framework to strengthen preventive, monitoring and mitigation measures to reduce disaster losses in the region. Myanmar signed the AADMER in July 2005 and subsequently ratified the AADMER. Myanmar is a member of the newly established UNESCAP Committee on Disaster Risk Reduction and actively participated in the first meeting held in Bangkok on 23 and 24th March 2009.

Myanmar is also a member of the ADPC Regional Consultative Committee on Disaster Management (RCC) since its establishment in 2000. It participated in annual RCC meetings and was one of the 26 RCC member countries that adopted the Hanoi RCC-5 Statement in 2005, on mainstreaming DRR into development in Asia that guides the implementation of the RCC program on mainstreaming DRR into development (RCC/MDRD).

⁴ http://acdm-online.net/index.php?option=com_content&task=view&id=39&Itemid=57#aadmer

1.5 Post Nargis Processes

Government of Myanmar: The National Disaster Preparedness Central Committee held its emergency meeting on 3rd May 2008 at 8:30 am and duties were assigned to the Central Committee and ten Sub-Committees to achieve their respective aims. Eight Ministers were made in-charge of one Township each for the Post – Nargis recovery overall supervision and coordination. Under the guidance of NDPCC, close supervision of Sub-Committees, departments, local authority, local people and NGOs worked together for relief and response.

The Head of the State gave three phased guideline for relief and rehabilitation tasks: First Phase for emergency relief activities, Second Phase for resettlement and development activities and Third Phase for prevention of disasters in future. NDPCC's '*Program for Reconstruction of Cyclone Nargis Affected Areas and Implementation Plan for Preparedness and Protection from Future Natural Disasters*' was launched on 15 August 2008.

The Government of Myanmar constituted National Disaster Preparedness Standing Order Drafting Team to draft Standing Order (SO), which was finalized in January 2009.

Tripartite Core Group (TCG): The Tripartite Core Group under the Chair of Government of Myanmar, comprising Government of Myanmar, ASEAN and UN Agencies, was constituted on 30th May 2008 for better coordination and cooperation between Myanmar and the international community in the humanitarian relief and recovery work post-Cyclone Nargis. The Post Nargis Joint Assessment (PONJA) report of July 2008, in Annex 21, identified all DRM priorities. It called for a phased approach to DRR, with initial work on enhancing disaster preparedness in the affected areas, and later a comprehensive DRR effort covering all vulnerable areas of the country.

The Post-Nargis Recovery and Preparedness Plan (PONREPP) for the affected areas, launched in February 2009, has a series of recovery responses in the delta over the period 2009-2011 to promote productive, healthy, and protected lives. DRR is one of the three sectors under the theme of protected lives.

1.6 Stocktaking of past and ongoing work on Disaster Management/Disaster Risk Reduction in Myanmar

Disaster Risk Reduction is not new to Myanmar as risk reduction projects on Storm Shelter Embankments by the Ministry of Agriculture and Irrigation in Rakhine State in the aftermath of 1968 cyclone, and the Dry Zone Greening Project for the Nine Critical Districts was launched by the Ministry of Forestry in 1994 in central Myanmar. Hence, it is important to profile the past and ongoing DRR projects, which will help in identification of future areas of intervention in terms of geographical spread, DRR sub-themes and timeline (of DRR activities).

Stocktaking process: In order to identify future DRR projects and profile the past and ongoing DRR projects, a Questionnaire was developed by ADPC in consultation with Ministry/Departments, UN Agencies and NGOs in February 2009. It was discussed in

the Early Recovery Cluster-DRR Working Group meetings and circulated to its members for comments.

Based on the feedback, the final questionnaire was developed and it had following three questions (Annexure I):

- (I) What are the **completed** projects/activities, in the last 3 or more years, which are related to Disaster Management
- (II) What are the **ongoing** projects/activities which are related to Disaster Management
- (III) Identify **3 new projects/activities for future** related to DRR that the responding agency would like to prioritize for implementation

Apart from the Questionnaire, Focused Group Discussions were held with Ministry/ Departments, UN Agencies and NGOs. Also, a desk review was also done through review of projects documents, brochures, progress reports and websites of DRR related agencies.

Overview of Disaster Management project stocktaking findings: The response was received from 58 agencies which include 24 Ministries/Departments, 10 UN Agencies and ASEAN, 22 NGOs and 2 Professional bodies (Annexure II). In total, 88 projects have been profiled, of which 49 are ongoing projects and remaining 39 projects are completed. The past and ongoing projects have been categorized into 7 themes and an overview of theme-wise projects is at Table 1.

Table 1 Overview of Past and On-going DRR Projects

S/N	Theme	Lead Agency			Status of Project		Total Projects
		Govt	UN Agencies	INGOs/ NGOs/ PA*	Completed	On-going	
1	Policy, Institutional arrangements and further institutional development	8	1	2	7	4	11
2	Hazard, vulnerability and risk assessment	2	2	4	4	4	8
3	Multi- hazard Early Warning Systems	9	2	2	8	5	13
4	Preparedness and Response Programs at National, State/ Division and Township levels	8	-	6	6	8	14
5	Mainstreaming of Disaster Risk Reduction into Development and Mitigation	7	2	9	7	11	18
6	Community based Disaster Preparedness and Risk Reduction	-	1	7	2	6	8
7	Public Awareness, Education and Training	9	2	5	5	11	16
	TOTAL	43	10	35	39	49	88

* PA: Professional Associations

It is important to note that the profiling of disaster management projects is an ongoing process. Details of above-mentioned past and ongoing projects have been compiled in a report titled '*Compilation of Past and Current Disaster Management and Disaster Risk Reduction Projects*⁵'.

1.7 MAPDRR: Process of Development

In order to make Myanmar disaster resilient the Myanmar Action Plan on Disaster Risk Reduction [MAPDRR] has been prepared with a consultative and partnership approach. It has identified projects which need to be implemented to meet the HFA and AADMER commitments.

An Inter-Agency Task Force was constituted with the coordination of the Director-General, Relief and Resettlement Department under the guidance of MSWRR, to undertake drafting of MAPDRR. The other Task Force members include 18 Departments from 12 Ministries, UN Agencies (UNDP and UNOCHA), professional institutions, Myanmar Red Cross Society and ADPC with ASEAN as observing partner (Annexure III). Overall technical assistance and secretariat support to the Task Force and consultative process was provided by the Asian Disaster Preparedness Center (ADPC).

Four Working Groups were constituted to develop the specific components of MAPDRR, namely: (I) Hazard, vulnerability and risk assessment and Multi-hazard early warning systems, (II) Policy, Institutional arrangement and further Institutional development and Preparedness and response programs at National, State/Division, District and Township levels, (III) Mainstreaming Disaster Risk Reduction into development and (IV) Community based Disaster Preparedness and Risk Reduction and Public Awareness, Education and Training. The members of Working Groups are drawn from the MAPDRR Task Force (Annexure IV).

The Task Force and Working Groups held sixteen and four meetings respectively over the period 2009-12 and MAPDRR was finalized at the 16th meeting of the Task Force.

⁵ Prepared by Myanmar Information Management Unit and Asian Disaster Preparedness Center.

Chapter 2: MAPDRR components and future Disaster Risk Reduction projects

2.1 Goals and Objectives

The Goal of MAPDRR is

‘To make Myanmar Safer and more Resilient against Natural Hazards, thus Protecting Lives, Livelihood and Developmental Gains’

In order to achieve the Goal, the objectives of MAPDRR are as follows:

1. To build a more resilient and safer community through conceptualization, development and implementation of appropriate disaster risk reduction programs and culture of safety;
2. To provide a framework for implementing Myanmar’s DRR commitments at the global and regional levels, under HFA and AADMER;
3. To provide a mechanism where the disaster risk reduction initiatives of all Government Ministries and Departments, supported by UN organizations and other stakeholders, can be coordinated and monitored;
4. To provide a conducive environment for mainstreaming DRR into development plans, and programs at the National, State, Division, Township, and Village Tract levels; and
5. To support mutually beneficial partnerships between the Myanmar Government and their development cooperation partners in DRR programs.

2.2 Overview of MAPDRR Components

The MAPDRR has 7 components which align with the five Hyogo Framework for Action (HFA) Priorities and with the Articles of the ASEAN Agreement on Disaster Management and Emergency Response (AADMER). Each component has 4 to 13 sub-components/projects and in total 65 priority projects have been identified. Details are at Table 2.

Table: 2 Component-wise numbers of projects and its linkage to HFA and AADMER

S/N	Component	HFA Priorities	AADMER	No. of Projects
1	Component 1: Policy, Institutional arrangements and further institutional development	Priority 1	Article 6, 10	4
2	Component 2: Hazard, vulnerability and risk assessment	Priority 2	Article 5	8
3	Component 3: Multi-hazard Early Warning Systems	Priority 2	Article 7	10
4	Component 4: Preparedness and Response Programs at National, State/Region, District and Township levels	Priority 5	Article 6, 8	10
5	Component 5: Mainstreaming of Disaster Risk Reduction into Development	Priority 4	Article 6	13
6	Component 6: Community based Disaster Preparedness and Risk Reduction	Cross-cutting	Article 6, 7	9
7	Component 7: Public Awareness, Education and Training	Priority 3	Article 6, 7	11
Total				65

The list of Disaster risk reduction Components and Sub-Components/projects are at Table 3.

Table 3: List of Disaster risk reduction Components and Sub-Components/Projects

1	Policy, Institutional arrangements and further institutional development
1.1	Development of National Disaster Management Law
1.2	Enhancement of Disaster Risk Reduction Mandates of Ministries and Departments
1.3	Updation of Standing Order on Disaster Management
1.4	Strengthening and Capacity Building of Disaster Management Focal Points in each Ministry and Region/State, District, Township Disaster Preparedness Agencies
2	Hazard, vulnerability and risk assessment
2.1	Vulnerability and Risk Assessment at various levels
2.2	Hazard and Vulnerability Atlas of Myanmar
2.3	Landslide Hazard Zonation Map
2.4	Flood Risk Map
2.5	Drought Prone Area Map
2.6	Cyclone and Storm Surge Map
2.7	Seismic Zonation of Myanmar
2.8	Wider usage of Fire Hazard Zonation Map
3	Multi - hazard Early Warning Systems
3.1	Upgradation of Existing Early Warning Centers
3.2	Multi-hazard End-to-End Early Warning Dissemination System
3.3	Improved Metrological Observation and Forecasting
3.4	Enhanced Flood Monitoring and Forecasting Capacities at Township level
3.5	Landslide Study and Monitoring
3.6	Drought Study and Monitoring
3.7	Cyclone Tracking and Storm Surge Forecasts
3.8	Seismic Monitoring
3.9	Oceanic and Tsunami Monitoring System
3.10	Forest Fire and Haze Monitoring System
4	Preparedness and Response Programs at National, State/ Region, District and Township levels
4.1	Multi-hazard Preparedness and Response Plan for Quick deployment of Resources
4.2	Multi-hazard Response Plan for Region/State, District and Township
4.3	Emergency Operation Center
4.4	Strengthening Emergency Support Functions
4.5	Review and Expansion of Rapid Response Team
4.6	Cyclone Contingency Program for Delta and Coastal Region
4.7	Provision of Safe Shelter
4.8	Development of School Disaster Preparedness Program
4.9	Preparedness and response program for psychosocial impacts, epidemic and disease control in the aftermath of natural disasters
5	Mainstreaming of Disaster Risk Reduction into development
5.1	Updating and Enforcement of City Development Committee Law, Township Development Committee Law, and Building By-laws and Codes of Practices
5.2	National Land Use and Physical Planning Policy
5.3	Sustainable Coastal Development to Protect Against Natural Disasters
5.4	Landslide Mitigation in Risk prone Areas
5.5	Integration of Disaster Risk Reduction in Housing Sector
5.6	Integration of Disaster Risk Reduction in School and Health Facilities
5.7	Integration of Disaster Risk Reduction in Infrastructure Facilities
5.8	Sustainable Development in Dry zone area to Protect/Mitigate Against Drought
5.9	Flood Mitigation Plan for Agricultural Sector
5.10	Urban Earthquake Vulnerability Reduction Program
5.11	Risk Transfer and Sharing Mechanism

5.12	Introducing Disaster Impact Assessment (DIA) as part of the Planning and approval Process of Development Programs
5.13	Promoting Sustainable Development in the Mountainous Areas
6	Community based Disaster Preparedness and Risk Reduction
6.1	National Policy on Development of Community Based Disaster Risk Reduction
6.2	National Program on Community based Disaster Risk Reduction
6.3	Promoting Community based Disaster Risk Reduction Volunteerism
6.4	Establishing Community based Disaster Risk Reduction Resources Centers
6.5	Preparedness and Mitigation through Small Grants Program
6.6	Micro Finance Schemes
6.7	Integration of Community based Disaster Risk Reduction into Community Development Projects
6.8	Development and implementation of Community based Natural Resource Management Programs
6.9	Documentation of Community Based Disaster Risk Reduction Good Practices
7	Public Awareness, Education and Training
7.1	Awareness through the International Day for Disaster Reduction
7.2	National Public Awareness Program
7.3	Awareness through School and School Curriculum
7.4	Awareness through University Curriculum
7.5	Expansion Plan for Disaster Management Training
7.6	Training for Emergency Preparedness and Response at Township Level
7.7	Enhancing Training Capacities
7.8	Special Awareness Program
7.9	Establishment of Disaster Management Training Center
7.10	Research and Development in Disaster Risk Reduction
7.11	Regional Networking and Knowledge Sharing on Disaster Risk Reduction

2.3 Components and Sub-Components of MAPDRR

Component 1: Policy, Institutional arrangements and further Institutional Development [HFA 1]

Rationale

Each Ministry issues instructions to its departments for the preparation of Natural Disaster Management Plans. Department of Health, Public Works, Department of Agricultural Planning, Departments under the Ministry of Education, etc have prepared their departmental Natural Disaster Management Plans.

Also all departments and the schools under the Ministry of Education have received guidelines for drafting plans in order to minimize the impacts of disasters. In order to promote greater and more effective undertakings of disaster risk reduction initiatives, complementary policies, guidelines and institutional arrangements will be developed under this component. All the Sub-Components target primarily at enhancing the capacities of existing institutions and to lay the foundation for future undertakings.

Planned Sub-Components

Sub-Component 1.1: Development of National Disaster Management Law

This sub-component plans to draft a National Disaster Management Law which will support the implementation of disaster management interventions. It will serve as a legal instrument in support of taking necessary actions and making strategic decision in order to reduce the negative effects of natural disasters. The Law has been drafted, under the supervision of the Relief and Resettlement Department with support of other departments. The process will include reviewing similar works done in ASEAN and other countries with the assistance from international agencies such as ASEAN and ADPC. Discussions and consultations with various stakeholders will be held to ensure their needs and requirements as reflected in the law, covering all aspects of disaster management from preparedness to mitigation to response to rehabilitation.

Sub-Component 1.2: Enhancement of Disaster Risk Reduction Mandates of Ministries and Departments

With the expansion of the ministerial responsibilities in the National Plan, revised under the sub-component (4.1) '*Multi-hazard Preparedness and Response Plan for Quick Deployment of Resources*', the existing plans at the ministry and department levels shall be amended in line with the existing guidelines. First of all, the Relief and Resettlement Department will help to orient the various ministries and departments to have a better understanding of disaster risk reduction. Each ministry then will review and update their own plans, particularly in extending their preparedness and mitigation roles. Each ministry will also assess their own capacities and indicate the requirements in their plans. The improved plans will be more actionable. This sub-component is closely linked with component (5) '*Mainstreaming of Disaster Risk Reduction into development*'.

Sub-Component 1.3: Updation of Standing Order

The Government of Myanmar constituted a 33-member National Disaster Preparedness Standing Order Drafting Committee on 29th September 2008 under the Chair of Minister for Transport and Co-Chair, Minister, MSWRR to draft Standing Order (SO). The SO was prepared and finalized in January 2009 by the Drafting Team. In compliance with the new institutional arrangements for Disaster management in Myanmar in March, 2011, the Standing Order will be revised and updated with the lead of MDPA. Also, it shall be disseminated and implemented at various Sub-Region/State levels for effective and coordinated response. The Relief and Resettlement Department and the General Administration Department, under the guidance of MDPA, will lead the revision and dissemination of the Standing Order at Sub-Region/State levels.

Sub-Component 1.4: Strengthening and Capacity Building of Disaster Management Focal Points in each Ministry and Region/State, District, Township Disaster Preparedness Committees

This sub-component focuses primarily on the ministerial disaster management focal points at the National and Region/State levels. A program will be developed to lay down capacity building activities of the focal points that will include conducting trainings,

study visits to neighboring countries and their involvement as resource persons in disaster management trainings (link to sub-component (7.5) '*Expansion Plan for Disaster Management Training*'). The concerned ministry will collaborate with appropriate partners such as ASEAN Secretariat, UN Agencies, ADPC, etc.

It also expects improved coordination between the members of Inter-Departmental Committees and improved information flow between the Committees at various levels. To facilitate the better information flow, the communication system between Committees will be improved. Through linkages with the Component (7) '*Public Awareness, Education and Training*', opportunities for regular trainings and workshops shall be made available to the disaster preparedness committees at all levels.

Table 4 **Component 1: Policy, Institutional Arrangements and Further Institutional Development**

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt Agencies	Potential Partners ⁶	Priority H,M,L ⁷
1.1	Development of National Disaster Management Law	To provide a legal framework for Disaster Management in Myanmar to all stakeholders	• Constitute a Law Formulation Committee to support disaster management interventions • Review the national disaster management policy of various countries • Draft suitable Law and get approval	• Union level Disaster Management Law drafted and enforced	2 years	MSWRR and RRD	Attorney General's Office, other concerned Depts	ASEAN Secretariat, ADPC , other UN agencies and INGOs	H
1.2	Enhancement of Disaster Risk Reduction Mandates of Ministries and Departments	To strengthen the Disaster Risk Reduction obligations of the ministries and departments	• Review the existing ministerial and departmental plan • Update the existing plans (Link to 4.1 and Component 5)	• The DRR commitment of each Ministry and Dept deepened	3 years	MDPA and Concerned Ministries		FAO, other UN agencies and INGOs	H
1.3	Updation of Standing Order	To update and disseminate the S.O at Sub-Region/ State for effective response	• Revision and updation of S. O. in context of new institutional arrangements for Disaster Management • Wider-dissemination of the revised S. O. at sub-region and state levels (Link to 4.1 and 4.2)	• Standing Order revised and disseminated	2 years	MDPA, Ministry of Transport, GAD, RRD	Region/ State DP Agencies and concerned Ministries	Other UN agencies and INGOs	H

⁶ Potential partners include UN Agencies, Regional organizations, NGOs and Professional Associations

⁷ H = High, M = Medium, L = Low

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt Agencies	Potential Partners	Priority H,M,L
1.4	Strengthening and Capacity Building of Disaster Management Focal Points in each Ministry and Region/State, District, Township Disaster Preparedness Agencies	To further develop the disaster risk reduction capacities of Ministerial Focal Points and create a conducive atmosphere where Ministry and DP Agencies at all levels can work together effectively	• Training to enhance capacities of existing DM Focal Points (at Ministerial and Region/ State levels • Setting system for regular meetings of DP Agencies at all levels and information exchange between the DP Agencies and other stakeholders • Capacity building of DP agencies at all levels (link to component 7)	• Coordination between DP committees at all level strengthened • Flow of information made smooth among all DP Agencies	3 years	MDPA, State/ Region DP Agencies	GAD and concerned Ministries	UNOCHA, WHO, UNESCAP, FAO, UNHCR, UNICEF, MRCS, ASEAN Secretariat, NGOs, other UN agencies and INGOs	H

Component 2: Hazard, Vulnerability and Risk Assessment [HFA 2]

Rationale

Any effective disaster management planning including preparedness and mitigation require specific information on hazard, the underlying vulnerability and the associated risks in relation to communities, infrastructure, livelihood, etc. The component aims to prepare hazard specific risk maps, using latest scientific methodology for whole country at various levels, which will act as decision making tool for prioritization of risk reduction interventions and development planning. It will also take into account the future risks arising from climate change as it looks set to increase the incidence of droughts and floods and the intensity of windstorms.

Department of Meteorology and Hydrology (DMH), Planning Department of MNPED, Myanmar Engineering Society, Myanmar Geosciences Society, Engineering Geology Department of Yangon Technological University (YTU) and Dry Zone Greening Department will lead this component under the guidance of MDPA. Fire Services Department, Forest Department, Department of Health, Department of Traditional Medicine, Relief and Resettlement Department and MIMU will assist the lead agencies in accordance with their area of expertise. The nine common natural hazards of Myanmar namely cyclone, drought, earthquake, fire, flood, forest fire, landslide, storm surge and tsunami will be prioritized. The comprehensive risk Atlas will be based on probabilistic and deterministic methodology.

Planned Sub-Components

Sub-Component 2.1: Vulnerability and Risk Assessment at various Levels

The first step is to prepare the guidelines on comprehensive vulnerability and risk assessment in line with MDPA's plan. The task will be jointly undertaken by RRD and DMH. The guidelines will describe step by step assessment methodology starting from the Ward/Village Tract levels, how the outcomes can be analyzed and the systematic reporting at various levels. The guideline will also underline the assessment of such special interest groups as persons with disability and mentally challenged elderly, women and children.

Based on the guidelines, Trainings of Trainers (ToT) on vulnerability and risk assessment will be designed and delivered in 24 townships, spread over four geographical regions: coastal, delta, low-land plain and mountainous. The trainings will be organized in partnership between Planning Department, Department of Social Welfare, RRD, GAD, DMH, Department of Health, Department of Traditional Medicine, Irrigation Department, UN Agencies, MIMU and NGOs. The criteria for selection of townships will be (1) the township is located in the vulnerable location, (2) the township faces more than one hazard, and (3) the respective Township Disaster Preparedness Agency expresses interest in taking up the pilot project.

The trained personnel will then provide 2 more multiplier trainings in each township (48 altogether) for the community, part of which consists of actual data collection at the ground level. The compiled data will be utilized for mapping township risk and vulnerability scenarios. The State and Regional level Planning Department will further draft a plan of expansion to cover the remaining Townships within their jurisdiction.

Sub-Component 2.2: Hazard and Vulnerability Atlas of Myanmar

The information collected under sub-component (2.1) '*Vulnerability and Risk Assessment at Township Levels*' will be compiled in a national level database to be hosted and maintained by Planning Department, MNPED in collaboration with Forest Department and DMH. The accumulated data will be utilized to generate the Hazard and Vulnerability Atlas of Myanmar at four different levels and scales: national, regional (coastal, delta, low-land plain, mountainous), district and township. A system will be set up to ensure regular updates of the data and the Atlas every five years.

Sub-Component 2.3: Landslide Hazard Zonation Map

Under this sub-component, a plan will be devised to collect data on slope stability and risks at landslide prone locations in the country and the resulting data will be applied to revise the existing landslide hazard zonation map and Myanmar Earthquake Committee (MEC) will play role. The completed Map will afford valuable information in such development activities as rural and urban planning. A database system with up-to-date information will be established and maintained by MEC, with technical support from DMH, Public Works, Myanmar Geosciences Society and Engineering Geology Department of YTU.

Sub-Component 2.4: Flood Risk Map

Department of Health, Department of Traditional Medicine together with DMH, has identified 48 flood prone Townships in Myanmar based on the rainfall data and past flood events; to help them plan for emergency operations. The flood risk map to be prepared under this sub-component will build upon this existing initiative. With the technical support of MIMU, a system will be established to receive and update the map based on data provided by DMH, Department of Water Resources and Improvement of River System (DWRIRS) and Irrigation Department.

Sub-Component 2.5: Drought Prone Area Map

The Dry Zone Greening Department is currently implementing programs in 54 Townships identified as arid zone. Therefore, derived from this available data together with the drought prone area classification and the historical rainfall data, other drought prone townships will be identified and a drought prone area map will be prepared. The map can be used for food security programmes by Department of Agricultural Planning and Irrigation Department (link to sub-component (5.8) '*Sustainable Development in Dry zone area to Protect/Mitigate*

Against Drought'), Health Department for potential malnutrition cases and Livestock Breeding and Veterinary Department for animal health schemes and DMH.

Sub-Component 2.6: Cyclone and Storm Surge Map

Under this sub-component, it is expected that two maps will be prepared; cyclone and storm surge inundation map of Rakhine State and a map for the entire coastline of Myanmar, using historical data. DMH and MIMU already have extensive amount of data with regards to past cyclones and their impacts and they can jointly develop and maintain the maps. The resulting maps can help in coastal development projects and programs planning (link to sub-component (5.3) *Sustainable Coastal Development to Protect against Natural Disasters*).

Sub-Component 2.7: Seismic Zonation of Myanmar

This sub-component envisages to advance the data collection and interpretation capacity of Department of Meteorology and Hydrology (DMH) on seismic occurrences, from the data to be obtained under sub-component (3.8) '*Seismic Monitoring*'. Recently, Myanmar Earthquake Committee has produced the seismic zonation maps (Year 2006) of Myanmar and major cities of Mandalay-Amarapura, Bago-Oaktha and Taunggyi. This sub-component will support the development and maintenance of a database of seismic information, programmed to be updated regularly with direct feed from the various seismic stations over the country. As a result, the existing maps will be updated systematically and the maps of more major cities, situated along or near the fault line, will also be prepared.

Sub-Component 2.8: Wider Usage of Fire Hazard Zonation Map

The existing Fire Hazard Zonation map of Myanmar is prepared by the Fire Services Department based on past fire cases. This sub-component plans to promote wider usage of the existing map by FSD, Forest Department, Department of Human Settlement and Housing Development, Department of Health, Department of Traditional Medicine, RRD, Department of Transport, Myanmar Electric Power Enterprise, etc. In order to do so, a survey on the needs of potential users will be carried out and their feedback on the existing map will be collected. The inputs, once compiled, will help in the revision of the map. Anticipated requests and suggestions include combining population density map with fire hazard map or creating a fire hazard map showing water sources or production of specific fire hazard map of major cities and towns.

Table: 5

Component 2: Hazard, Vulnerability and Risk Assessment

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt Agencies	Potential Partners	Priority H, M, L
2.1	Vulnerability and Risk Assessment at various levels	To identify vulnerability and risks at National and regional levels for more efficient planning	• Development guidelines for comprehensive multi-hazard vulnerability and risk assessment. • Design ToT courses on vulnerability and risk assessments methodology.	The risk and vulnerability recorded, mapped and updated systematically and regularly throughout the country	3 years	MDPA, RRD, DMH, GAD, Livestock Breeding and Fisheries Department, SLRD, Dept. of Agri Planning, City Development Committees	Planning Dept., Dept. of Social Welfare, Fire Services Dept., Dept. of Health, Irrigation Dept., Dept. of Development Affairs	UNDP, UNOCHA, MIMU, WFP, FAO, UNESCAP, UNICEF, MES, MGS, other UN agencies and INGOs	H
		To identify specific risks and vulnerability associated with coastal areas in Myanmar	Coastal Vulnerability and Risk Assessment • Identify 4 pilot townships in Rakhine State to conduct ToT programs. • Support trained facilitators to conduct more trainings (2 trainings per township) at the community level. • Support actual assessment practices as part of the multiplier training. • Prepare and produce draft township vulnerability maps based on raw data and	Risks and vulnerability in coastal region realized and understood to pave way for future DRR interventions	3 years	MDPA, RRD, DMH, GAD	Dept of Social Welfare, Fire Services Dept., Irrigation Dept., Dept. of Health (at all levels),	UNDP, UNOCHA, MIMU, WFP, FAO, UNESCAP, UNICEF, MES, MGS, NGOs, other UN agencies and INGOs	H

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt Agencies	Potential Partners	Priority H, M, L
			findings. • Prepare an expansion plan for training and assessment. • Specify time line for periodic assessment in the future.						
		To identify specific risks and vulnerability associated with deltaic region in Myanmar	Vulnerability and Risk Assessment of Delta • Identify 8 pilot townships in Ayeyarwady and Yangon Regions to conduct ToT programs. • Support trained facilitators to conduct more training (2 trainings per township) at the community level. • Support actual assessment practices as part of the multiplier training. • Prepare and produce draft township vulnerability maps based on raw data and findings. • Prepare an expansion plan for training and assessment. • Specify time line for periodic assessment in the future.	Risks and vulnerability in Delta region realized and understood to pave way for future DRR interventions	3 years	MDPA, RRD, DMH, GAD	Dept. of Social Welfare, Fire Services Dept., Irrigation Dept., Dept. of Health (at all levels),	UNDP, UNOCHA, MIMU, WFP, FAO, UNESCAP, UNICEF, MES, MGS, NGOs, other UN agencies and INGOs	H
		To identify specific risks	Vulnerability and Risk Assessment of Low-land	Risks and vulnerability in	3 years	MDPA, RRD, DMH,	Dept. of Social	UNDP, UNOCHA,	H

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt Agencies	Potential Partners	Priority H, M, L
		and vulnerability associated with low-land plain region in Myanmar	Regions • Identify 4 pilot townships (2 in Mandalay and 2 in Bago Regions) to conduct ToT programs. • Support trained facilitators to conduct more training (2 trainings per township) at the community level. • Support actual assessment practices as part of the multiplier training. • Prepare draft township vulnerability maps • Prepare an expansion plan for training and assessment. • Specify time line for periodic assessment in the future.	low-land regions realized and understood to pave way for future DRR interventions		GAD	Welfare, Fire Services Dept., Irrigation Dept., Dept. of Health (at all levels)	MIMU, WFP, FAO, UNESCAP, UNICEF, MES, MGS, NGOs, other UN agencies and INGOs	
		To identify specific risks and vulnerability associated with hilly regions in Myanmar	Vulnerability and Risk Assessment of Hilly and Mountainous Regions • Identify 8 pilot townships (4 in Shan and 4 in Chin States) to conduct ToT program. • Support trained facilitators to conduct more training (2 trainings per township, altogether 16 trainings) at the community level.	Risks and vulnerability in hilly and mountainous regions realized and understood to pave way for future DRR interventions	3 years	MDPA, RRD, DMH, GAD	Social Welfare Dept., Fire Services Dept., Irrigation Dept., Health Dept. (at all levels)	UNDP, UNOCHA, MIMU, WFP, FAO, UNESCAP, UNICEF, MES, MGS, NGOs, other UN agencies and INGOs	H

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt Agencies	Potential Partners	Priority H, M, L
			• Support actual assessment practices as part of the multiplier training. • Prepare and produce draft township vulnerability maps based on raw data and findings. • Prepare an expansion plan for training and assessment. • Specify time line for periodic assessment in the future.						
2.2	Hazard and Vulnerability Atlas of Myanmar	To provide a decision making tool for planning and development oriented activities	• Create a database system for collected data under 2.1. • Make use of database developed and produce the 1st draft of hazard and vulnerability Atlas at 4 different levels and scales: national, regional (4 regions of 2.1), district and township.	• An up to date atlas of Myanmar produced • Planning and development programs development supported	3 years	DMH, Forest Dept., RRD, SLRD, Local government	Planning Dept, concerned govt agencies	WFP, FAO, MES, MGS, Non-Govt. agencies, other UN agencies and INGOs	M
2.3	Landslide Hazard Zonation Map	To study specify areas susceptible to landslide hazard in the country and monitor	• Develop a plan to conduct field data collection in all landslide vulnerable areas • Support the collection of data • Revise the existing landslide hazard zonation map	Landslide prone areas and locations identified	2 years	Public Works, GAD, MGS	DMH, Engineering Geology Dept. of YTU	FAO, MES, other UN agencies and INGOs	M

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt Agencies	Potential Partners	Priority H, M, L
			Design a database system hosted and maintained by MEC						
2.4	Flood Risk Map	To specify areas vulnerable to flood risk in the country	- Based on rainfall data and historical flood events, produce flood risk map - Develop a system for updation of map	Flood risk map produced for flood protection	2 years	DMH, Irrigation Dept, Dept. of Water Resources and River System, SLRD, Local government	Forest Dept., Dept. of Health, Settlement and Land Record Dept, DWRIRS	MIMU, MES, MGS and other UN agencies and INGOs	H
2.5	Drought Prone Area Map	To identify drought affected areas in the country	- Review classification of drought prone areas - Based on the rainfall pattern and historical data, produce the drought map	Drought prone areas indicated and mapped for drought mitigation purposes	3 years	Dept of Agricultural Planning, Dry Zone Greening Dept., Forest Dept., SLRD, Local government	DMH, Irrigation Dept., Dept. of Health	FAO, MIMU, MES, MGS other concerned agencies	M
2.6	Cyclone and Storm Surge Map	To generate cyclone and storm surge maps for coastal areas	- Compile historical data to generate cyclone and storm surge map - Generate cyclone and storm surge inundation map	Cyclone and storm surge risk as an input to coastal development planning	2 years	DMH, SLRD, Local government	Irrigation Dept., Dept. of Health and other concerned depts.	MIMU, MES, MGS and other concerned agencies, other UN agencies and INGOs	H

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt. Agencies	Potential Partners	Priority H, M, L
2.7	Seismic Zonation of Myanmar	To support the development and planning decisions in the country	- Enhance data collection and analysis capacity at DMH (link to 3.8) - Obtain data from seismological stations - Establish a database with a regular updating system - Update existing seismic zonation map - Generate specific seismic map for major cities and towns located along fault lines	- An up-to-date seismic zonation map of Myanmar - Input for development and planning activities in context of earthquake risk reduction	4 years	DMH, MES, City Development Committees	DDA, Local government	MGS, Related Technical and Academic Institution, other UN agencies and INGOs	H
2.8	Wider Usage of Fire Hazard Zonation Map	To promote the usage of fire hazard zonation map in rural and urban planning and development	- Circulate the map widely to all potential users of fire hazard zonation map (urban and town planning, public works, development committees) - Conduct a survey of the users for their feedback on the usefulness of the map - Incorporate the outcomes of survey in the next revision of the map - Set up system to update the map	Fire hazard consideration integrated into rural and urban planning and development works	3 years	Forest Department and Fire Services Department	Concerned Govt. agencies	FAO, NGOs, other UN agencies and INGOs	M

Component 3: Multi-hazard Early Warning Systems [HFA 2]

Rationale

The objective of setting up an early warning system is to alert the population under threat (of an imminent disaster) in time so that they can take timely protective actions. A comprehensive early warning system usually consists of four key elements: (1) prior knowledge of the risks, (2) presence of a monitoring and warning service, (3) multi-layer information dissemination system, and (4) capacity to take timely actions. If one part fails, the entire system can collapse, resulting in innumerable damages. If one of the elements fails, the whole system can be failed and lossess will be encountered.

For successful establishment of an early warning system in Myanmar, proper arrangements need to be made at national and sub-national levels down to grass-root level not just in transmission of warnings but also in capturing the timely hazard information. The sub-components proposed here are designed in such a way as to augment the monitoring and warning capacities and the multi-layer information dissemination system through extension and improvement of the existing systems. All of these will contribute to the effective functioning of the suggested Early Warning Center. The sub-components will tie up especially with activities under the component (2) '*Hazard, Vulnerability and Risk Assessment*', component (4) '*Preparedness and Response Programs at National, State/Region, District and Township Levels*' and component (6) '*Community Based Disaster Preparedness and Risk Reduction*' to assure the institution of a self-sufficient System.

Planned Sub-Components

Sub-Component 3.1: Upgradation of Existing Early Warning Centers

The Department of Meteorology and Hydrology (DMH) has two Early Warning Centers, one each in Yangon and Nay Pyi Taw. Under this sub-component, the existing centers will be enhanced with further instrumentation. Also the capacity building of the Early Warning Centers staffs will be undertaken for further augmenting the interpretation and dissemination capacity. It will seek technical support from international agencies such as ADPC, UNDMT and ESCAP; particular linkage would be made with the ongoing RIMES's program on 'Indian Ocean End-to-end Multi-hazard Early Warning System'.

Sub-Component 3.2: Multi-hazard End-to-End Early Warning Dissemination System

Under this sub-component, a system will be designed and established for rapid transfer of official warnings issued from the Early Warning Center (link to sub-component (3.1) '*Upgradation of Existing Early Warning Centers*') to the community level. To ensure effective dissemination of warning information, inter-ministerial arrangements will be formalized with clearly specified procedures. This can be built upon the existing mechanism as Monsoon Forums organized annually by the DMH where the capacities of many departments, in the role of the climate information users, have already been assessed. In

addition, communication equipment will be provided at the township level to fully support the warning transmission activities and the possible usage of the off-shore and coastal communication system of Myanmar Posts and Telecommunications will be explored. The village volunteer groups or village committees set up under community based disaster preparedness by various agencies shall be utilized.

Sub-Component 3.3: Improved Meteorological Observation and Forecasting

This sub-component will identify the needs in meteorological observation and forecasting and will find ways to fill the gaps. Though assistance from external bodies will be sought in terms of state-of-the-art weather observation technology, a long term plan will be developed to ensure that the local capacities are enhanced and maintained and to upgrade the 102 existing stations of DMH and set up new stations, if required.

Sub-Component 3.4: Enhanced Flood Monitoring and Forecasting Capacities at Township Levels

Focusing on the flood risk reduction at township level, this sub-component will look at the formal inclusion of flood monitoring activity as part of existing plan of the Township Disaster Preparedness Agency. Specific orientation workshops will be organized in 16 townships: 3 each in Ayeyarwady, Mandalay, Sagaing, Kachin and Rakhine, and 1 township in Tanintharyi for orienting the Agency members on interpreting the flood forecast information provided by DMH and Irrigation Department on what kind of associated risks and impacts can be expected.

Sub-Component 3.5: Landslide Study and Monitoring

Modeling software should be installed to generate likely scenarios for landslide hazards. DMH, MES, MGS and the Engineering Geology Department of YTU, Public Works and GAD with their longstanding work on landslide should also be involved as key partners. On top of the modeling system, regular field inspection should be conducted to look for such signs as small rock falls and scar along the slopes in landslide prone area. Since this is an entirely new initiative, it is essential to establish partnerships and learn from other experienced Asian countries with the similar problem, namely China, Japan, Malaysia, Nepal, Philippines, India and Sri Lanka.

Sub-Component 3.6: Drought Study and Monitoring

Drought monitoring work, over the years, has been undertaken mainly by the Ministry of Agriculture and Irrigation. DMH has one center in Mandalay that devotes to drought monitoring and this can be further improved. The cooperative efforts between various concerned agencies such as Dept. of Agriculture Planning, Irrigation Dept., Dept. of Health, MOECA and Livestock Breeding and Veterinary Dept. will also be encouraged (link to sub-component (5.8) '*Sustainable Development in the Dry Zone Area to Protect/Mitigate Against Drought*').

Sub-Component 3.7: Cyclone Tracking and Storm Surge Forecasts

The key activity under this component is to install advanced modeling software along with instruments (Radar) on cyclone and storm surge, at the DMH offices in Kyauk Phyu and Yangon, so that the storm tracks can be predicted and information sent to the Early Warning Center for issuance of timely warnings.

Sub-Component 3.8: Seismic Monitoring

Monitoring of seismic movements will be achieved through installation of high-tech seismic stations at the tactical locations such as around Sagaing and other active fault lines. To link up all individual station and ultimately to the Early Warning Center, a network of Global Positioning System (GPS) will be installed to get information on ground behavior.

Sub-Component 3.9: Oceanic and Tsunami Monitoring System

One of the key activities under the RIMES's Indian Ocean End-to-end Multi-hazard Early Warning System is to install buoys with data transmitter to detect any anomaly of the ocean wave along the coastlines of the Indian Ocean countries. The primary partner of RIMES in Myanmar is the Department of Meteorology and Hydrology (DMH) and the data obtained will be delivered directly to multi-hazard Early Warning Center at DMH.

Sub-Component 3.10: Forest Fire and Haze Monitoring System

Building upon the existing systems within the Forest Department, a GIS based monitoring system, with linkages to the ASEAN Scientific Monitoring Center in Singapore, Singapore Weather Information Portal, Global Environment Center in Malaysia and Indonesia Weather Center will be put in place to observe the forest fire incidents in the country. In connection, the National Haze Action Plan will be reviewed, revised and reactivated by MOECA, with technical support from FSD, UN Agencies and ASEAN. Linkages to the proposed National Adaptation Plan of Action on Climate Change (NAPA) will also be identified. As for ground level implementation, five townships each in Chin and Shan States will be identified and trainings on forest fire prevention will be delivered for the community.

Table 6**Component 3: Multi-hazard Early Warning Systems**

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt Agencies	Potential Partners	Priority H, M, L
3.1	Upgradation of Existing Early Warning Centers	To upgrade the existing centers by instrumentation and capacity building	- Identify and install instruments to further enhance technical capacity - Train staff on interpretation and dissemination of early warning	Upgraded early warning system	4 years	DMH, MPT	GAD, other concerned government agencies	WMO, NGOs, other UN agencies and INGOs	H
3.2	Multi-hazard End-to-End Early Warning Dissemination System	To reduce the negative impacts of disasters through capacity building of at-risk communities to prepare for and mitigate disaster risks	- Orient concerned agencies on the existing EWS - Institutionalize inter-agency arrangements and coordination mechanism for better information flow - Provide data communication equipment at township level - Formalize early warning dissemination arrangements at all levels (Link to 3.1)	- Communication network established to expedite transmission of warning - At-risk community received warning on time	2 years	DMH, MPT, GAD, Region/ State DPA	Ministry of Posts and Telecommunications, Ministry of Information, MRTV, RRD, other concerned government agencies	UNDP, UNICEF, LWF other NGOs, other UN agencies and INGOs	H
3.3	Improved Meteorological Observation and Forecasting	To improve the observation and forecasting capabilities	- Appraise existing weather observation stations and identify additional needs - Installation of technical equipment - Dialogues with international bodies for technical support	Better forecasting provided	4 years	DMH, Irrigation Dept.	All universities and technical universities, all other concerned government agencies	UN Agencies, PTC, NGOs, other UN agencies and INGOs	H
3.4	Enhanced Flood	To enhance the flood	Strengthen the involvement of agencies	Township DP committees	3 years	GAD, DMH,	Concerned Depts,	FAO and other UN	M

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt Agencies	Potential Partners	Priority H, M, L
	Monitoring and Forecasting Capacities at Township Levels	monitoring and forecasting capacity of township meteorology and hydrology officers and the DP committees	other than DMH at the township level in flood monitoring • Include flood monitoring in township DP committee's formal roles • In 16 flood prone townships (3 each in Rakhine, Ayeyarwady, Sagaing, Kachin and Mandalay, 1 in Thanintharyi) • Conduct orientation workshops for Township DP Committees on flood forecasts • Plan for extension of capacity building activity • In Flash Flood prone areas, it will be also covered	can understand and interpret the technical forecast information and undertake monitoring work effectively during flood season		Irrigation Dept, DWRIRS	Universités and technical bodies	Agencies, TICA, JICA, KOICA, NGOs, other UN agencies and INGOs	
3.5	Landslide Study and Monitoring	To provide data and information on landslide hazard to the community at stake	• Identify a suitable landslide modeling system for Myanmar • Install the modeling software with the technical assistance from international bodies • Link it with database developed under project 2.3 • Develop multi-agency information dissemination system (link to 3.1.and 3.2)	Landslide monitoring capacity improved	3 years	Engineering Geology Department of YTU, GAD, Public Works, MES, MGS	DMH, all universities and technical universities, other concerned Government Depts., Forest Department	FAO and other UN Agencies, Myanmar Earthquake Committee, NGOs, other UN agencies and INGOs	M

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt Agencies	Potential Partners	Priority H, M, L
3.6	Drought Study and Monitoring	To reduce the negative impacts of drought through effective drought monitoring	- Establish a standardized system for declaration of drought - Set up a coordination mechanism among concerned agencies for drought monitoring - Data collected from monitoring missions can be fed into drought map (Link to 2.5)	Planning for agriculture and food security supported through data and information on drought	2 years	Forest Dept., DMH, Irrigation Dept, Dept of Agri. Planning, Dry zone Greening Dept	all universities and technical universities, concerned government bodies	FAO, UNESCAP, other UN Agencies, International Agencies,	M
3.7	Cyclone Tracking and Storm Surge Forecasts	To obtain concise and timely cyclone and storm surge information	- Set up weather monitoring and tracking system (Radar at Kyauk Phyu and Yangon) - Develop a GIS based storm surge modeling software at Early Warning Center - Establish a 24X 7 monitoring system (link to 3.1 and 3.2)	Constant monitoring of cyclone and its associated risks during monsoon season achieved	4 years	DMH	Universities and technical bodies	UN Agencies, PTC, International Agencies, other concerned agencies	H
3.8	Seismic Monitoring	To acquire more precise seismic data	- Locate well-defined seismogenic sources in the country - Install state-of-the-art seismic stations at the said locations (link to 2.7) - Set up networks of GPS stations to feed information directly to multi-hazard Early Warning Centre (Link to 3.1)	- Timely and precise seismic data generated and recorded - Information on active faults achieved	3 years	DMH, MGS, MES	Universities and technical universities, other concerned government agencies	UN Agencies, MEC, NGOs, other UN agencies and INGOs	H

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt Agencies	Potential Partners	Priority H, M, L
3.9	Oceanic and Tsunami Monitoring System	To detect any abnormal fluctuations of the sea level for issuance of timely warnings	• Install sea level gauge devices at key location along coast • Establish a communication network for transmission of real time data to go directly to multi-hazard Early Warning Centre (3.1)	Any sudden change in sea level detected immediately and warning issued for necessary precautionary actions	3 years	DMH	MPT, concerned government agencies, Universities and technical universities	IOC, UNESCAP, other UN Agencies, MGS, ADPC, NGOs, other UN agencies and INGOs	M
3.10	Forest Fire and Haze Monitoring System	To observe the forest fire and haze incidents and trends in the country	• Install a GIS based forest fire and haze monitoring system at Forest Dept • Provide data to Early Warning Centre (3.1) • Revise National Haze Action, if required • Design and deliver trainings, in 5 townships each in Chin and Shan to the community and NGOs on forest fire prevention • Awareness raising activities on forest fire and haze problems • Establish linkages with regional organizations such as ASEAN, Scientific Monitoring Centre, Singapore and Global Environment Center, Malaysia	Suitable Action Plan revised/ developed with linkages to climate change adaptation	2 years	MOECAP, Forest Dept., DMH, Dept. of Occupational Health	Fire Services Dept, , other concerned government agencies Universities and technical universities	UNEP, Sentinel Asia, ASEAN, NGOs , other UN agencies and INGOs	M

Component 4: Preparedness and Response Programs at National, State/Region, District and Township Levels [HFA 5]

Rationale

The preparedness activities are usually undertaken to ensure setting up of necessary arrangements, policies, equipment and training in order to deliver efficient response and relief. In the post disaster situation, effective response guarantees that affected communities are provided with basic essential needs to begin the process of re-establishing normal community operations. Nevertheless, the response activities have to be seen in a broader context as a part of the comprehensive set of arrangements which address all aspects of disaster management.

Under this component, the preparedness and response interventions recommended range from national level initiatives to community level activities, tackling such issues as preparing for response and building the capacities of response service providers with shared resources from government and non-government agencies. The proposed sub-components will take advantage of the existing systems and arrangements and the ongoing programs and projects.

Planned Sub-Components

Sub-Component 4.1: Multi-hazard Preparedness and Response Plan for Quick Deployment of Resources

This sub-component will look at the study of existing similar document and this will be undertaken through a series of brainstorming workshops at the various levels. The Working Group formed to undertake the study of existing document will steer the process of developing Multi-hazard Preparedness and Response Plan for Quick Deployment of Resources based on the recommendations and suggestions made at the workshops. The key strategy is to provide extensive linkages with the Periodic Review and pilot projects conducted by ASEAN Humanitarian Task Force under TCG, the Myanmar Action Plan on Disaster Risk Reduction (MAPDRR), the contingency plan of the Inter-Agency Standing Committee (IASC) and the existing plans and strategies of NGOs.

Sub-Component 4.2: Multi-hazard Response Plan for Region/State, District and Township

Simultaneously with the development of Multi-hazard National Response Plan, a guideline on drafting Multi-hazard Response Plans at the sub-national level will be prepared. The guideline will indicate the detailed process on holding of conceptualization workshops for Disaster Preparedness Agencies, consultation with NGOs, preparation of resource inventory, stipulation of standard operating procedures for each Committee member (roles and responsibilities) and scheme for regular update of the plans. With the backing from MDPA and General Administration Department, it is anticipated that three Region/State plans for Ayeyarwady, Mandalay and Rakhine will be drafted in the first 2 years as a way of experimenting the guideline. Based on that experience, an expansion plan will be developed

for other states and Regions. The extensive experiences of NGOs in supporting community planning will also be brought into this activity.

Sub-Component 4.3: Emergency Operation Center [EOC]

This component envisages setting up three EOCs. It will be located one each in Central Myanmar (Nay Pyi Taw), Lower Myanmar (Yangon) and Upper Myanmar (Mandalay), which will take responsibility for managing emergency operations within the defined geological boundaries while a unit will be established within the Yangon Center for overall coordination and the preparation towards and run up to any emergency operations.

Sub-Component 4.4: Strengthening Emergency Support Functions

Under this sub-component, harmonization of all government departments (General Administration Department, Relief and Resettlement Dept., Dept. of Health, Fire Services Dept., Myanmar Agriculture Services, Irrigation Dept., Myanmar Posts and Telecommunications, Information and Public Relation Dept., etc.) active in the relief and response operations will be undertaken through regular information sharing meetings, setting up coordination and response mechanism. One such instance is upgrading of warehouse facilities of RRD. It will spell out the means for sharing of resources among various departments. Link to sub-component (4.1) '*Multi-hazard Preparedness and Response Plan for Quick Deployment of Resources*'.

Sub-Component 4.5: Review and Expansion of Rapid Response Team

Ministry of Home Affairs and Ministry of Social Welfare, Relief and Resettlement will be the lead agency to oversee the response operations at national level. The rapid response teams can be dispatched at a short notice and it may include the non-government agencies. In consequence, the needs of the government departments identified under the previous sub-component: (4.4) '*Strengthening Emergency Support Functions*', can be realized with the pool of resources between government and non-government institutions. Moreover, the complementing experiences and knowledge of these agencies will be invaluable in building the capacities of the Team through formal trainings, informal discussions and upgrading of various response equipment and facilities.

Sub-Component 4.6: Cyclone Contingency Program for Delta and Coastal Region

This sub-component will further strengthen the cyclone risk mitigation and preparedness activities and support the development of cyclone preparedness plans in twenty (20) coastal townships in Ayeyarwady, Rakhine, Mon and Yangon. The assistance will include implementation of the plan such as helping the township disaster preparedness agencies in conducting need assessment at the ground level, in forming/ re-activating/expanding the community volunteer groups and in conducting suitable trainings, in partnership with the NGOs already working in those townships.

At the same time, the linkages with ongoing initiatives should be identified and potential collaborative areas explored and realized. For instance, it can include sending the government officials to the Asian countries for excursion. Moreover, PONREPP has identified cyclone preparedness as one of the key priorities and possible collaborative actions should be looked at.

Sub-Component 4.7: Provision of Safe Shelter

The Government of Myanmar and other partners are undertaking cyclone risk mitigation and preparedness activities. 56 Cyclone shelters have been constructed which include 2 in Yangon Region and 26 in Ayeyarwady Region by government and 28 in Ayeyarwady Region by UN/INGOs. Government has constructed 11 new roads linking coastal regions that were devastated by the cyclone and their adjoining areas, Life saving hills, raising height of embankments, etc.

Since May 2008, many Nargis affected areas in Ayeyarwady Region have seen the construction of safe shelters in the form of school, hospital, etc, with funding from both government and non-government organizations. This sub-component will draw upon the experiences gained and lessons learned from these ventures and the ones before and will organize a national level workshop for sharing information and knowledge on shelter designs, using the locally available materials and with great sensitivity to local traditions and customs. The discussions and outcomes from the workshop will be utilized to formulate a plan to develop appropriate shelter designs for each specific hazard. The shelter design specifications drafted by the Public Works will serve as the key reference document.

Sub-Component 4.8: Development of School Disaster Preparedness Program

The Ministry of Education and the Township Disaster Preparedness Agencies will take the lead roles in this sub-component to work with the school authorities and teachers from selected schools in all States and Regions with priority accorded to Ayeyarwady, Chin, Magway, Mandalay, Rakhine, Sagaing and Thanintharyi, in devising individual school disaster preparedness programs. The Township Education Offices will facilitate the schools to conduct risk assessment of their own schools and their vicinities as basis for their preparedness programs preparation. The program implementation will also be supported by township authorities.

Sub-Component 4.9: Preparedness and response program for psychosocial impacts and epidemic and disease control in the aftermath of natural disasters

In the time of post-disaster, outbreaks of epidemics is common, which can lead to several deaths. It is important to provide training on epidemic control and prevention, ensure availability of medicines and health care facilities and sanitation (systematic garbage disposal, clean water). Apart from above mentioned activities, this component will include psychosocial aspects of disaster on community. It will also include coordination and

cooperation among departments and NGOs. Ministry of Health will lead this component. It will have linkages to sub-components (4.1) and (4.4).

Sub-Component 4.10 : Flood preparedness and mitigation in flood prone areas

This sub-component aims to increase flood resilience in selected high flood prone areas of Myanmar. The pilot project will cover 10 Townships and 30 communities (3 each in the targeted townships) from high flood prone areas along the Ayeyarwady, Chindwin, Sittaung Thanlwin and Tanintharyi rivers. The areas along these rivers are frequently affected by wide spread flood. The project activities will include Awareness raising on flood risk reduction through various campaigns and tools, Capacity building and training of concerned Township authorities and communities to develop specific Flood Preparedness and Mitigation Plan and Community level flood preparedness. It will also strengthen the community flood response by provision of necessary equipments for flood rescue.

Table: 7 **Component 4: Preparedness and Response Programs at National, State/Region, District and Township Levels**

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt. Agencies	Potential Partners	Priority H, M,L
4.1	Multi-hazard Preparedness and Response Plan for quick deployment of resources	To enable rapid deployment of response teams	• Constitute a Working Group • Organize a series of multi-stakeholder brain storming workshops to study existing plans • Establish linkages of the individual plans of NGOs to MAPDRR and reflecting needs identified under Periodic Reviews • Clearly lay out roles and responsibilities of each ministry and the coordination mechanism between various agencies for effective preparedness, response and relief operations • Linkage with IASC Contingency Plan (link to 1.2, 1.3 and 1.4)	• Roles of each ministry in responding to a national level hazardous event clearly spelled out • Coordination mechanism between ministries specified for effective response	3 years	MDPA, MSWRR	Dept. of Health and GAD, concerned Government Agencies	UNDP, WHO, UNOCHA, WFP, UNICEF, NGOs, MRCS, ADPC, other UN agencies and INGOs	H

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt. Agencies	Potential Partners	Priority H, M, L
4.2	Multi-hazard Response Plan for Region/ State, District and Township	To enable rapid deployment of response operations at the sub-national levels	- Review the existing plans at the sub-national levels - Identify improvements for the plans - Revise the state/ regional response plans in Ayeyarwady, Mandalay and Rakhine in the first 2 years of the project through participatory approach - Revise the township level plans in all 3 states and divisions - Replicate the model in other regions and states.	Action plan in placed at Region and State levels for rapid response operations for any type of hazard	3 years	GAD and the DP Agencies at all levels	Fire Services Dept, RRD, Dept. of Health, concerned government,	UNDP, WHO, UNOCHA, UNAIDS, UNICEF, MRCS, NGOs, ADPC, other UN agencies and INGOs	H
4.3	Emergency Operation Center	To provide a focal point for coordination of emergency operations	- Set up 3 more EOC, one each in central (Nay Pyi Taw), lower (Yangon) and upper (Mandalay) Myanmar - Assist in coordination of not just emergency but also preparedness and mitigation activities	Coordinated, consistent and competent emergency interventions ensured	3-4 years	MOHA , MSWRR	State/ Region DP Agencies and concerned government agencies	NGOs, other UN agencies and INGOs	H

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt. Agencies	Potential Partners	Priority H, M, L
			Establish a reporting system for regular information sharing with MDPA						
4.4	Strengthening Emergency Support Functions	To ensure more effective and coordinated emergency response and relief services	- Identify government agencies involved in emergency services - Prepare a schedule for regular discussion and gathering of identified agencies - Identify priority areas of each agency that need to be strengthened (manpower, equipment, capacity building needs, etc.) - Develop departmental plans to address the identified priority areas - Develop comprehensive plan.	The existing emergency services enhanced in terms of both capacity and resources	4 years	MDPA, MSWRR	State/ Region DP Agencies, Dept. of Health, Dept. of Agricultural Planning, Irrigation Dept., Ministry of Construction, GAD, IPRD, MPT, all concerned government departments,	UNOCHA, UNAIDS, UNICEF, UN Agencies, ASEAN, NGOs, other UN agencies and INGOs	H

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt. Agencies	Potential Partners	Priority H, M, L
4.5	Review and Expansion of Rapid Response Team	To consolidate resources of various agencies for more effective response function	- Organize a meeting of concerned Govt. Agencies, UN Agencies and NGOs active in emergency response to reach a consensus of how to pool their resources together in emergency response operations(link to 4.4) - Formalize the composition and role of Rapid Response Team - Upgrade the status as well as capacity of Rapid Response Team through trainings and acquisition of new search and rescue equipment, communication and transportation facilities	The Rapid Response Team institutionalized and strengthened	2 years	MDPA, MOHA and MSWRR	State/ Region DP Agencies, GAD, Ministry of Construction, Fire Services Dept., Dept. of Health, other concerned Govt agencies,	UNOCHA, UNICEF and UN Agencies, ASEAN and NGOs, other UN agencies and INGOs	H

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt. Agencies	Potential Partners	Priority H, M, L
4.6	Cyclone Contingency Program for Delta and Coastal Region	To enhance the capacity of the coastal communities to prepare for, response to and recover from cyclone impacts	• Study Cyclone Preparedness Program in Bangladesh as a model • Conduct feasibility studies in 5 townships each in Ayeyarwady, Rakhine, Mon, Bago and Yangon to identify key areas of needs • Design and formulate Preparedness Plan based on existing Action Plan • Form community volunteer groups and provide trainings (search and rescue, warning dissemination, etc. with link to 3.2) • Based on this experience, develop a program to extend the assistance to other vulnerable townships in coastal areas to develop cyclone preparedness plans	Adequate preparedness and mitigation activities are identified and undertaken	3 years	Relief and Resettle-ment Department, DMH, State/ Region Disaster Prepared-ness Agencies	Township DP Agencies, MoAI, Ministry of Health, GAD and other concerned Govt agencies	UNDP, UNOCHA, PTC, UNICEF, and other UN Agencies, JEN, MRCS, ADPC, JICA, Other International bodies, other UN agencies and INGOs	H

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt. Agencies	Potential Partners	Priority H, M, L
4.7	Provision of Safe Shelter	To offer safe haven to disaster affected communities	• Organize a national level workshop to share experiences from shelter construction and design • Identify areas where safe shelter will be required and develop appropriate design using locally available construction materials • Identify existing buildings which could be used as shelters and improve them • Introduce the shelter design specifications developed by Public Works • Construct new shelters if required	Shelters provided for communities in case of emergency	3 years	Ministry of Construction, Ministry of Border Affairs, local government	Concerned government agencies,	UNDP, UN-HABITAT, Shelter WG, MES, private firms, NGOs, other UN agencies and INGOs	H

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt. Agencies	Potential Partners	Priority H, M, L
4.8	Development of School Disaster Preparedness Program	To provide safer learning environment for children, teachers, and school authority	- Identify schools each in all States/ Regions including Sub-States/ Regions), giving priorities to Ayeyarwady, Chin, Magway, Mandalay, Rakhine, Sagaing and Thanintharyi - To coordinate and develop individual school preparedness plans - To implement such plans in pilot schools, report the findings and extend to other schools	- Hazards and their related risks identified in the immediate surroundings of the schools - Children and school authority know what to do in emergencies - Schools well prepared for any type of hazard	2 years	Ministry of Education, Regin/State /Township DP Agencies	GAD, Concerned Government Agencies	UN Agencies, MRCS, NGOs, JICA, School Welfare Teams, other UN agencies and INGOs	H
4.9	Preparedness and response program for epidemic and disease control, psychosocial impacts and human trafficking in the aftermath of natural disasters	To control psychosocial impacts, epidemic and diseases which spread in the aftermath of natural disasters and provide psycho-social care	- Training to emergency response team on epidemic control - Medicine deployment planning - Distribution of pure drinking water - Training on Community based epidemic monitoring system - Awareness drive on sanitation in disaster context	Reduction in deaths due to epidemic and in psychosocial impacts	2 years	MDPA, Ministry of Health	Concerned Depts.	WHO, UNAIDS, UNICEF, NGOs, Private sector, other UN agencies and INGOs	H

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt. Agencies	Potential Partners	Priority H, M, L
			- To prepare for psychosocial care - System for prioritization of patients including coordination with other departments						
4.10	Flood preparedness and mitigation in flood prone areas	To enhance capacity of Township authorities and Community of selected flood prone areas on flood preparedness and mitigation	- Awareness generated at Township and Community levels on flood risk reduction through various activities such as Awareness raising workshops, school campaign, community billboard/information materials on Do's and Don'ts on flood - Capacity building activities for pilot Township authorities and Communities on Township and Community specific Flood Preparedness and Mitigation Plan - Training on flood response in pilot communities - Mock drills on flood response to check preparedness and	- Flood Preparedness and Mitigation Plan developed for 10 prioritized townships and 30 communities - Capacity building activities for pilot Township authorities and Communities on Township and Community specific Flood Preparedness and Mitigation Plan - Training on flood response in pilot communities	3 Years	Ministry of Agriculture and Irrigation , Local government	Relief and Resettlement Department, Department of Meteorology and Hydrology, GAD, State/Regional authorities	UN Agencies, NGOs, MRCS and other development agencies other UN agencies and INGOs	

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt. Agencies	Potential Partners	Priority H, M, L
			improve plan • Standard Operation Procedure for flood response for community level teams • Support community level flood response team by providing basic flood rescue equipments	• Mock drills on flood response to check preparedness and improve plan • Standard Operation Procedure for flood response for community level teams • Support community level flood response team by providing basic flood rescue equipments					

Component 5: Mainstreaming of Disaster Risk Reduction into Development [HFA 4]

Rationale

The development interventions do not necessarily reduce risk to natural hazards, but unintentionally it can create new risk or augment the existing ones. In the event of disasters, not only additional resources are used for recovery but the developmental gains are lost. Hence, there is need of comprehensive sustainable development approach which integrates disaster risk reduction as an integral component of the development processes rather than as an end in itself.

The 'Mainstreaming of Disaster Risk Reduction into Development' component strives to promote the integration of disaster risk reduction elements into ongoing and future development programs in the country. The identified sub-components envisage to include DRR into housing, infrastructure, education, health, land-use planning, agriculture, urban planning and over and above in project appraisal process. This component calls for strong linkages with ongoing development projects such as NAPA, Dry Zone Greening, etc.

Planned Sub-Components

Sub-Component 5.1: Updating and Enforcement of City Development Committee Law, Township Development Committee Law and Building By-laws, and Codes of Practice

It envisages updation and enforcement of Development Committee Law, Building by-laws, and Codes of Practice to include risk reduction elements especially seismic risks. It is proposed that an Expert Group be formed to review the existing by-laws and acts with regards to construction and to provide suggestions and recommendations on which the revision of the documents will be based upon. The Group will consist of representatives from concerned departments as Public Works, State/Region Development Committee under Department of Development Affairs, Department of Human Settlement and Housing Development, MES, Development Committees (Yangon, Mandalay and Nay Pyi Taw), technical universities etc. The sub-component will then support the enforcement of the by-laws/acts, particularly the City Municipal Law in 3 major cities of Nay Pyi Taw, Yangon and Mandalay and in five secondary cities of Bago, Magway, Monywa, Patheingyi, Pyaw, Sittoung and Taunggyi. It will be expanded to other cities.

Sub-Component 5.2: National Land Use and Physical Planning Policy

This sub-component will support elaboration and formalization of land use planning procedures in urban and rural planning activities into procedures and policy, covering a wide range of geographical areas from land use planning in river catchment areas and basin, in coastal zone and in mountainous area. The policy development will be led by the National Land Use and Physical Planning Committee comprising ministries concerned shall be constituted. Based on the policy and guidelines, the Region/State Land Use Committee

comprising Department of Human Settlement and Housing Development, GAD, Department of Agriculture, SLRD, Forest Department and other concerned Departments will cooperate for implementation. The Department of Human Settlement and Housing Development, GAD, City Development Committees and Department of Development Affairs will lead for Housing Development issues under this policy. The other departments will oversee if their development activities and programs align to these policies and guidelines.

l

Sub-Component 5.3: Sustainable Coastal Development to Protect Against Natural Disasters

The coastal areas of Myanmar are at risk from multiple hazards including risk emerging from climate change, hence require a holistic development planning and interventions. This sub-component will support government agencies, NGOs to form a network and produce guidelines on integrated coastal zone management that will look at coastal natural resources management, adopt proper land use planning, build community resilience and enhance their livelihood options. Assistance will be sought from international organizations which has similar expertise and already operating in the country.

Sub-Component 5.4: Landslide Mitigation in Risk-prone Areas

Under this sub-component, mitigation measures including road and slope protection will be undertaken in (12) townships, three each in Shan, Kachin, Chin States and Tanintharyi Region, selected based on the results of the field study to be conducted in the beginning of the activity. The lead agencies for this sub-component are the Ministry of Construction, Forest Department, GAD and the Engineering Geology Department of YTU. Myanmar Earthquake Committee will be collaborator in implementing such measures as water and drainage management, installing structural support (such as rock bolts, rock anchor, retaining wall, buttresses), landslide warning dissemination and public awareness program.

Sub-Component 5.5: Integration of Disaster Risk Reduction in Housing Sector

There are two parts under this sub-component, capacity building of construction personnel and the development of guidelines on the application of land-use planning policy (drafted under the sub-component (5.2) '*National Land Use and Physical Planning Policy*') and the building by-laws and acts (enforced under the sub-component (5.1) '*Updating and Enforcement of Development Committee Law, City Municipal Acts and Building By-laws, and Codes of Practice*'). The trainings on basic hazard resistance construction methods will be organized for construction workers in 15 townships in disaster prone areas. The guidelines development will be followed by support of actual application on the ground in the same townships. The Public Works and DP Agencies at various levels will be leading the implementation of this sub-component. The trainings will vary in content as per the hazard proneness of the area.

Sub-Component 5.6: Integration of Disaster Risk Reduction in School and Health Facilities

Array of government and non-government institutions have been working on reconstruction and rehabilitation of school and health facilities in the Nargis affected areas after May 2008. The said constructions are based mainly on cyclone resistance designs, provided either by the organization itself or by some other agency. Under this sub-component, efforts will be undertaken jointly by the Ministry of Education and Ministry of Health, with technical support from Public Works, UN Agencies and other related NGOs, to produce standardized school and health facility design specifications. The specifications will be of multi-hazard nature and each specific hazard will be given due consideration for both construction of new facilities and the retrofitting of existing structures. In addition, a contingency plan on installation of temporary schools and health facilities immediately after a hazardous event will be developed to ensure continuation of education and provision of primary health care services to the affected communities. Information exchange will be facilitated through organizing workshop to share experiences and knowledge.

Sub-Component 5.7: Integration of Disaster Risk Reduction in Infrastructure Facilities

To facilitate integration of risk reduction elements in infrastructure facilities, Irrigation Dept and Public Works will develop a set of guidelines for various types of infrastructure such as roads, bridges, overhead water tanks, public buildings, etc. Based on these, handbooks will be developed to help the practitioners and the application of the guidelines will be tested in 10 selected townships. GAD, Irrigation Department and Public Works will work closely with township disaster preparedness agencies and NGOs working in the target areas to monitor the progress and evaluate the results.

Sub-Component 5.8: Sustainable Development in Dry Zone Area to Protect/Mitigate Against Drought

This sub-component will support two projects in the dry zone area which are important in light of the climate change. The first project calls for integrated approach for the dry zone development. The second project is to develop a drought mitigation plan for the agricultural sector, to be led by the Department of Agricultural Planning and the Dry Zone Greening Department under the Ministry of Environmental Conservation and Forestry. The MOAI, in collaboration with Ministry of Environmental Conservation and Forestry and Ministry of Livestock Breeding and Fisheries, has ongoing projects focusing on agricultural development and utilization of water resources in 54 townships in the central dry zone of Myanmar. To advance these attempts, this sub-component will support researches on drought resistance crops. In ten townships in the dry zone area, the Department of Agricultural Planning and Dry Zone Greening Department will promote access to irrigation water through infrastructure development and prepare water distributing schemes. In the same townships, the Departments will also undertake demonstration and installation of rain water harvesting practices, conduct public education campaigns on community soil conservation and soil

fertility improvement, establish community seed banks in 100 villages and develop dry zone crop pattern to boost water conservation.

Sub-Component 5.9: Flood Mitigation Plan for Agricultural Sector

This sub-component will mainly be implemented in the ten townships in Ayeyarwady Region, to expand and develop on the ongoing efforts in the agricultural sector. The first activity planned is to orient the township agricultural officers and farmers on flood and salinity resistance crops. Then, suitable sites will be identified to pilot test the crops. Regular meetings will be held at the township level to facilitate information exchange among farmers, extension workers, millers and traders. To ensure adequate supply of water for both agriculture and consumption purposes, ponds will be constructed and the community trained on their maintenance.

Sub-Component 5.10: Urban Earthquake Vulnerability Reduction Program

The Urban Earthquake Vulnerability Reduction Program, in its first years, will assist the City Development Committees of Mandalay, Naypyitaw, Yangon and Department of Development Affairs for Bago, Pyinoolwin, Sagaing, Shwebo, Taunggyi for development of earthquake preparedness and response plans. The focus of plan is on public awareness on earthquake, its risks and how community can prepare to reduce the impacts. The City Development Committees will take lead in conducting the said awareness programs that will consist of demonstrations, drills and competitions at schools (essays, paintings, poetry, etc.) within their areas and will also assist the authorities at the ward level to develop preparedness and emergency response plans. An assessment of the key infrastructure within the city limit will be conducted to ensure they can withstand an earthquake and if necessary, structural reinforcement will be carried out.

Sub-Component 5.11: Risk Transfer and Sharing Mechanism

It envisages to suitable modify existing schemes, if any, or launch appropriate insurance schemes which can cover losses due to hazards. The first step recommended is to study the existing insurance products in Myanmar, neighbouring countries and other ASEAN countries related to disaster risk. Existing insurance products to be either modified or new product be developed, which can cover risks thus assisting in risk transfer and sharing. It will be pilot tested in 10 villages in Ayeyarwady Region. The lessons learned and experiences from the pilot testing will help to develop the final product, which will be launched nationwide.

Sub-Component 5.12: Introducing Disaster Impact Assessment (DIA) as part of the Planning and Approval Process of Development Programs

It envisages to develop a set of indicators on DRR which will be included as part of development project appraisal and approval process. The employees involved in the developmental project appraisal and approval processes will be made aware about

indicators. The piloting will be carried out in 10 selected townships in Ayeyarwady Region where development projects are to be implemented.

Sub-Component 5.13: Promoting Sustainable Development in the Mountainous Areas

The projects and programs related to soil and land degradation in mountainous areas have been implemented over the years. One such example is the Ministry of Agriculture and Irrigation's initiatives on introduction of watershed management concept in Kinda Dam project in 1970. This sub-component will attempt to develop and implement an integrated approach to support decision-makers for future development activities in mountainous region.

Table 8:**Component 5: Mainstreaming of Disaster Risk Reduction into Development**

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt. Agencies	Potential Partners	Priority H, M, L
5.1	Updating and Enforcement of City Development Committee Law, Township Development Committee Law and Building By-laws, and Codes of Practices	To promote safer construction through wide acceptance and practice of laws and acts	• Compile existing by-laws and acts • Form an Expert Group consisting of representatives from concerned departments • Organize meetings of the Expert Group to review the compiled dossiers and record suggestion/ recommendation • Update and revise by-laws/ acts as recommended • Enforce adoption of by-laws and acts by all concerned agencies • City Municipal Law enforcement in Nay Pyi Taw, Yangon, Mandalay and in Secondary cities: Bago, Magway, Monywa, Patheingyi, Pyaw, Taunggyi and Sittwe	Safer construction by-laws and acts adopted by all construction agencies	3 years	Ministry of Construction, Ministry of Border Affairs and Municipal Bodies, Fire Services Dept	Ministry of Science and Technology, Concerned Govt. agencies, Technical universities	UN-HABITAT, NGOs, MGS, MES, other UN agencies and INGOs	H
5.2	National Land Use and Physical Planning Policy	To encourage sustainable development programs particularly at the vulnerable locations	• Draft land use planning policy • Form a committee with representatives from concerned government departments to oversee the Policy formalization process	• Land use planning policy formalized • Sustainable development practices integrated into future programs	3 years	Department of Human Settlement and Housing Development, GAD, City Development Committees, SLRD, Forest	Concerned Govt. agencies, Department of Agriculture, Settlement and Land Records Dept,	NGOs, other UN agencies and INGOs	H

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt. Agencies	Potential Partners	Priority H, M, L
						Department	Municipal bodies		
5.3	Sustainable Coastal Development to protect against natural disasters	To assist in achieve sustainable development in coastal area	- Form a network of organizations and agencies working on coastal zone management - Produce guidelines for integrated coastal zone management with support from Ministry of Environmental Conservation and Forestry	Activities planned, guided and implemented to protect Coastal activities against natural hazards	3-4 years	State/ Region DP Agencies, MOECA, MOAI	Concerned Govt. agencies	UNEP, FAO, FRED, NGOs, Private firms, other UN agencies and INGOs	M
5.4	Landslide Mitigation in Risk Prone Areas	To reduce loss of lives and properties brought about by landslide	- Identify 3 landslide prone townships each in Chin State and Shan State. - Conduct studies to identify the direct and indirect impacts of landslide, the underlying causes and existing practices - Design and implement mitigation measures, including road and slope protection	- Appropriate landslide mitigation measures undertaken - Risks associated with landslide reduced in at-risk locations	3 years	GAD and Ministry of Construction and Forest Department	Engineering Geology Dept. of YU, concerned Govt. agencies	FAO, Private firms, NGOs, MEC, other UN agencies and INGOs	M

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt. Agencies	Potential Partners	Priority H, M, L
5.5	Integration of Disaster Risk Reduction in Housing Sector	To mainstream disaster risk reduction elements in housing development and maintenance works	• Train carpenters and Department of Agriculture on basic hazard resistance construction methods in 15 townships in disaster prone areas • Develop a handbook/ guidelines on hazard resistant construction techniques in local language in align with by-laws/ acts produced under 5.1 and 5.2 • Enforce the guidelines through incentive scheme.	Damages to properties caused by hazards reduced	3 years	Ministry of Construction, Department of Development Affairs	All other concerned Govt. agencies, Fire Services Dept	UN-HABITAT, Private firms, NGOs, other UN agencies and INGOs	H
5.6	Integration of Disaster Risk Reduction in School and Health Facilities	To ensure structurally sound construction of school and health facilities that can withstand any hazard and take on the dual roles of temporary shelter and service provider	• Develop a contingency plan where temporary facilities are provided for education and health services during the reconstruction phase • Hazard Proneness to be considered during site selection for school and health facilities. • Develop standardized school and health facility design specifications (for each hazard) and method of retrofitting existing structures and organize workshop • Enforce the usage of	• Hazard resistant schools and health facilities constructed/ re-constructed • Existing structures retrofitted to withstand the hazards	3 years	Ministry of Education, Ministry of Health, Dept. of Progress of Border Area and National Races	Public Works and other concerned Govt. Agencies	UNICEF, UN-HABITAT, WHO, WFP, FAO, World Vision, SC, SDC, JICA, MES, MGS, other UN agencies and INGOs	M

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt. Agencies	Potential Partners	Priority H, M, L
			design specifications Construction of multi-hazard resistant schools and health facilities						
5.7	Integration of Disaster Risk Reduction in Infrastructure Facilities	To ensure structurally sound construction of infrastructure facilities that can withstand any hazard	- Develop guidelines on integration of hazard specific structural considerations in infrastructure facilities - Identify 10 townships to test the application of the guidelines - Take monitoring and evaluation visits - Widely promote usage of the guidelines after necessary amendments based on the actual application process - To emphasize on re-evaluation of the regional Rainfall-runoff relationship	Hazard resistant critical infrastructure constructed	4 years	Irrigation Dept, Public Works, Disaster Preparedness Agencies at various levels and GAD, Ministry of Construction	Concerned Ministries and Depts.	FAO, NGOs, other UN agencies and INGOs	H
5.8	Sustainable Development in Dry Zone Area to Protect/ Mitigate against Drought	To integrate the sectoral program for sustainable development in dry zone areas	- Develop database of economic, social and environmental situations in dry zone areas, including the trends of drought in context of Climate Change - Analyze the sectoral programs for the development of dry zone - Identify collaborative areas and develop	Comprehensive approach developed for dry zone development	1-2 year	MOECF, Dry Zone Greening Dept.	14 Depts. and 1 NGO are report drafting committee members of UNCCD and RRD	UNEP, FAO, ADPC, other UN agencies and INGOs	M

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt. Agencies	Potential Partners	Priority H, M, L
			mechanism to exchange ideas, knowledge and experiences • Formulate an integrated approach for dry zone development (link to 2.5, 3.6 and 5.8)						
		To ensure food security and the livelihood of community living in the dry zone through agriculturally sound drought mitigation plan	• Promote research programs on drought resistance crops • Identify 10 townships in dry zone area In 10 selective townships, • Promote access to irrigation water through large scale infrastructure and small scale tank irrigation, river, stream and water pumping and ground water utilization • Prepare water distribution schemes to farming areas • Promote rain water harvesting in same locations • Educate the community on soil conservation and soil fertility improvement • Create community seed banks in selected villages with a procedure of obtaining quality seeds • Develop cropping pattern for dry zone agriculture to conserve water	Livelihoods of community in dry zone area supported and protected	(1-2) year	Dept. of Agricultural Planning, Dry Zone Greening Dept, Forest Dept	Irrigation Dept, concerned Govt. agencies	UNEP, FAO, NGOs, other UN agencies and INGOs	M

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt. Agencies	Potential Partners	Priority H, M, L
5.9	Flood Mitigation Plan for Agricultural Sector	To assist the farming communities living in flood prone areas to maintain their livelihoods	• Orient township Agricultural officers and farmers on flood and salinity resistance crops in selected 10 townships in Ayeyarwady • Identify appropriate sites for seed multiplication and pilot test the crops (flood and salinity resistant crops) • Facilitate information exchange among farmers, extension workers, millers and traders • Construct and maintain embankments for agriculture • Construct and maintain drinking water ponds • Train the community on proper maintenance of embankments and ponds	Livelihoods of farming community in flood prone areas supported and protected	3 years	Dept of Agricultural Planning	Department of Agriculture, Dept. of Agricultural Research, Irrigation Dept, concerned Govt. agencies	FAO, Action Aid, JICA, NGOs, other UN agencies and INGOs	H

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt. Agencies	Potential Partners	Priority H, M, L
5.10	Urban Earthquake Vulnerability Reduction Program	To minimize the seismic risks in populated urban areas through mitigation and preparedness	- In Bago, Mandalay, Nay Pyi Taw, Pyinoolwin, Sagaing, Shwebo, Taunggyi and Yangon cities, develop earthquake emergency response plan - The City Municipal and Dept of Development Affairs will take lead in conducting earthquake awareness programs - Develop ward level preparedness and emergency response plan within the city - Conduct assessment of the vulnerability of the critical facilities and key buildings - Implement measures to increase the resilience of these structures	Urban community is aware of the danger posed by earthquake and therefore adequately prepared	3 years	City Development Committees of Mandalay, Nay Pyi Taw Yangon and Township Development Committee of Bago, , Pyinoolwin, Sagaing, Shwebo, and Taunggyi , Dept. of Development Affairs	DHSHD, Concerned Govt. Agencies	ADPC, NGOs, MES, MGS other UN agencies and INGOs	H

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt. Agencies	Potential Partners	Priority H, M, L
5.11	Risk Transfer and Sharing Mechanism	To design effective economic and financial tools to transfer and share risk	- Study the existing insurance products related to disaster risks - Organize seminars and awareness raising events for financial institutions - Offer incentives to all concerned institutions for the development of risk transfer schemes - Pilot test the scheme at selected at-risk locations (10 villages in Ayeyarwady) - Revise and re-launch the scheme based on the lessons learnt from the pilot projects	- Involvement of financial institutions in disaster risk management promoted - Risk transfer scheme developed and tested	3 years	Myanmar Insurance	Dept. of Social Welfare, Agricultural Planning Dept., Concerned Govt. Agencies	NGOs, Private sector, other UN agencies and INGOs	M
5.12	Introducing Disaster Impact Assessment (DIA) as part of the Planning and Approval Process of Development Programs	To ensure integration of DRR elements in project approval processes and thus reducing future risks	- Formulate DIA related Indicators to be included in the planning and approval processes of a development program - Build the capacity of personnel concerned on conducting the assessment - Support the actual practice in 10 pilot townships in Ayeyarwady Region	- DRR integrated into planning and approval process of development programs - Damages to properties in disaster affected areas reduced - Sustainable development practices promoted	3 years	RRD and Planning Dept	Public Works, MOECAAF, concerned Govt. Agencies	WFP, ADPC, NGOs, other UN agencies and INGOs	M

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt. Agencies	Potential Partners	Priority H, M, L
5.13	Promoting Sustainable Development in the Mountainous Areas	To identify causes and effects of landslide hazard in order to support sustainable development in the mountainous areas	• Carry out study on population, natural resources, agricultural practices, watershed management, income generation activities, etc. in Chin, Kachin and Shan States • Carry out assessment on landslide, land degradation and soil erosion problems • Conduct public awareness activities to educate the community on sustainable practices and relevant law and regulation with regards to misuse of agriculture land, shifting cultivation, unauthorized felling and cutting of trees, wildlife hunting in protected areas in forest • Identify sustainable mountain farming system and conduct demonstration for application of such practices	• Application of sustainable agricultural practices promoted • The community living in mountainous areas aware of proper laws and regulations with regards to natural resource management • Community living in mountainous areas are capable of sustainable land and natural resource management.	1-2 year	MOECA, MoAI, Local government	Department of Agriculture, Forest Dept., Planning Dept., Ministry of Boarder Affairs, Department of Social Welfare	UNEP, WFP, FAO, ICIMOD, NGOs, other UN agencies and INGOs	M

Component 6: Community based Disaster Preparedness and Risk Reduction (HFA cross-cutting issue)

Rationale

Communities are not only first responders to disasters but also understand local hazards and resources, and are in the best position to execute immediate rescue and relief actions, hence a well-prepared community is of pivotal importance in Disaster Risk Reduction. Several studies have highlighted that a well-prepared community bounce back to normalcy much faster than the less prepared community in the aftermath of any disaster. PONJA identified 'Community-based disaster preparedness and enhancing risk awareness' as one of the immediate and short term need. 'Communities more fully engaged in DRR measures' has been identified as one of the outcome under PONREPP. Also, community based disaster preparedness and risk reduction is cross-cutting theme under HFA.

A comprehensive community based disaster preparedness and risk reduction approach is required. This component aims to create an enabling CBDRR framework as well as to identify community level disaster preparedness and risk reduction activities.

Planned Sub-Components

Sub-Component 6.1: National Policy on Development of Community Based Disaster Risk Reduction

The Ministry of Social Welfare, Relief and Resettlement will be the lead for drafting Community Based Disaster Risk Reduction (CBDRR) Policy. The objective of this policy is to create an enabling framework for community based disaster preparedness and risk reduction and guide future CBDRR projects. An inter-ministerial Task Force including CBDRR experts shall be constituted to draft CBDRR policy. It will study the similar policies of other ASEAN countries, with support from regional and international organizations like ASEAN, ADPC and UN Agencies, which are pioneering the application of CBDRR concept in the region. The CBDRR Policy will reflect and capture the concerns, needs and requirements of all stakeholders. The Policy will be presented to the MDPA for its approval and enforcement.

Sub-Component 6.2: National Program on Community Based Disaster Risk Reduction

The goal of the National Program on CBDRR is to provide a unified interface for CBDRR programs nation-wide. This is planned to achieve through clear definitions of roles and responsibilities of each government ministry in support of CBDRR implementation in the country. The program will emphasize on the importance of networking and information sharing among various agencies (both government and non-government) and will offer practical tools for such purpose. The Ministry of Social Welfare, Relief and Resettlement will the lead this sub-component and it will align with the 'National Policy on Development of Community Based Disaster Risk Reduction (CBDRR)' sub-component (6.1), with strong support from experienced partners such as Myanmar Red Cross Society, UN Agencies and NGOs.

Sub-Component 6.3: Promoting Community Based Disaster Risk Reduction Volunteerism

The success of any CBDRR initiatives rests on the sense of ownership imbrued within the community where the activities take place. This sub-component hopes to accomplish this spirit through involvement of community from the start in designing and implementing need-based risk reduction interventions in their locality to help nurture community volunteerism. Village volunteer groups will be formed under supervision of local DP Agency.

Sub-Component 6.4: Establishing Community Based Disaster Risk Reduction Resource Centers

Planning Department under Ministry of National Planning and Economic Development shall take lead for the formation of Resource Centers and MRCS has always been at the fore front of promoting CBDRR practices in the country. MRCS is also in the unique position to be coordinating extensive networks of volunteers and branch offices throughout the country with skilled human resources. In collaboration with Dept. of Social Welfare, Department of Health, Department of Traditional Medicine, Fire Services Dept., RRD, MRCS and local Disaster Preparedness Agencies, Planning Department will conceptualize and establish CBDRR Resource Centers. The roles of Resource Centers may slightly differ from place to place but the basic activities to be covered include provision of guidance on CBDRR activities, raising awareness of the community through production and distribution of IEC (information, education and communication) materials and preparation and maintenance of database on physical, material and human resources.

Sub-Component 6.5: Preparedness and Mitigation through Small Grants Program

The sub-component will first focus on implementing the activities in 10 pilot townships in Ayeyarwady, Rakhine, Tanintharyi, Yangon, Sagaing, Mandalay, Mon and Chin, before replicating to other areas. The emphasis will be on small scale mitigation activities at the community level such as raising the level of the roads that can act as a levee as well as safe higher ground, marking the routes to safe areas, etc. Initially, township level Small Grant Committees will be constituted with government officials and non-government organizations. The Committees will be responsible for drafting and setting up of township level small grant schemes. Based on the identified disaster risk reduction needs in consultation mode, proposals will be prepared. The sub-component will then assist in implementation of the projects. Monitoring will be undertaken by the township GAD in collaboration with MWAF, Myanmar Women Entrepreneurs Association and village authorities.

Sub-Component 6.6: Micro Finance Schemes related to DRR

In order to provide alternative livelihood options to the communities living in the at risk locations, micro-finance services will be established as pilot schemes in 20 townships in Ayeyarwady, Magway, Kachin and Rakhine. Pilot schemes will be initiated by experienced

NGOs such as PACT Myanmar and UN Agencies. As part of the activities, livelihood trainings will be provided to the communities to start their own small business, individually or collectively, and they will be further assisted to identify markets for their products with the involvement of local private firms.

Sub-Component 6.7: Integration of Community Based Disaster Risk Reduction into Community Development Projects

Under this sub-component, attempts will be made to integrate CBDRR concept into community development projects. In selected 30 villages in Ayeyarwady and Mandalay Region, a list of ongoing and planned development projects will be prepared for CBDRR integration. The local authorities will make the final decision in which projects and aspect of CBDRR should be merged. The local authorities will also monitor the project progress and ensure the information sharing among all implementing agencies by holding regular meetings at the township levels.

Sub-Component 6.8: Development and Implementation of Community Based Natural Resources Management Programs

This sub-component will address a wide range of natural resources development issues: land, water, forests, fisheries and rural institutions, with strong linkages provided to governance and culture in the rural communities. The sub-component will support the formation of a network of natural resource management focused agencies in the country. For piloting of the activities, 10 townships in Ayeyarwady and Shan will be selected for educating the community on how sound environmental practices can reduce the impact of disasters and the community will then be supported to prepare natural resources management programs based on the local needs. The community volunteer groups founded under the sub-component (6.3) '*Promoting Community Based Disaster Risk Reduction Volunteerism*' will be tasked with assisting in the implementation of the program.

Sub-Component 6.9: Documentation of Community Based Disaster Risk Reduction Good Practices

In order to reduce disaster risk, certain innovative activities/practices, using local resources are undertaken by communities which are effective. These practices need to be documented as it will help in replication on other parts of the country and region. This sub-component proposes to assist in carrying out survey in two most vulnerable areas in the country: in ten townships of Ayeyarwady and Rakhine to identify and record replicable community led good practices.

Table 9 **Component 6: Community Based Disaster Preparedness and Risk Reduction**

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt Agencies	Potential Partners	Priority H, M, L
6.1	National Policy on Development of Community Based Disaster Risk Reduction	To support the CBDRR focused program implementation	• Compile and study existing CBDRR policies from other ASEAN countries • Develop a suitable CBDRR policy for Myanmar through participatory process of all stakeholders (reflecting the needs of all stakeholders such as private agencies, UN bodies, NGOs and donors) • Submit the draft policy to MDPA for approval	Importance of CBDRR program recognized and implementation supported	2 years	MSWRR, RRD, local government	GAD and other Govt Agencies	UNDP, UN-AIDS, UNICEF, MRCS, ASEAN Secretariat, ADPC, ACF, NGOs, other UN agencies and INGOs	H
6.2	National Program on Community Based Disaster Risk Reduction	To provide a unified interface for CBDRR programs nation-wide	• Design and prepare a national level CBDRR program that clearly lays out the role of each government ministry in support of CBDRR • Develop clear guidelines on the networking and collaboration mechanism between government and non-government agencies	• Broad acceptance of CBDRR concept promoted • CBDRR programs country wide well coordinated	3 years	MSWRR, RRD, local government	Ministry of Health, MLSF, MoAI, Ministry of Education, Ministry of Transport, other Govt agencies	UNDP, UN-AIDS, UNICEF, MRCS, WV, Oxfam, NGOs, other UN agencies and INGOs	H

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt Agencies	Potential Partners	Priority H, M, L
6.3	Promoting CBDRR Volunteerism	To encourage sustainable community led disaster risk reduction interventions	- Form village volunteer groups under Village Tract DP Agency - Provide basic risk assessment and problem identification trainings in collaboration with the MRCS and other NGOs active in that particular area - Assist the volunteer groups in development of CBDRM program (link to 6.2, 6.5, 6.7) - Maintain a database of volunteer groups at the township level for coordination with other and NGOs - To Promote formation of volunteer force for Disaster Management	- Spirit of volunteerism and community participation encouraged - Community understanding of DRR issues enhanced - Commitment of the community ensured	2 years	DP Agencies of Region and State	DP Agencies at District and Township levels, other concerned government agencies,	UNDP, UNV, MRCS, CARE, IRC, LWF, SC, Action Aid, other UN agencies and INGOs	H
6.4	Establishing CBDRR Resource Centers	To create CBDRM information clearinghouse at strategic places	- Define clear roles and responsibilities of the Resource Centers - Develop 3- year program for the Centers - Set up township CBDRR Resource Centers	- Information sharing on CBDRR practices facilitated - Necessary technical support provided for CBDRR program implementations	3 years	Planning Dept	Dept of Social Welfare, MoI, Fire Services Dept, RRD	UNDP, MRCS, ADPC, SC, other UN agencies and INGOs	M

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt Agencies	Potential Partners	Priority H, M, L
6.5	Preparedness and Mitigation through Small Grant Program	To advocate community led preparedness and mitigation initiatives through setting up of small grant scheme	• Identity 10 pilot townships each in Ayeyarwady, Rakhine, Tanintharyi, Yangon, Sagaing, Mandalay, Mon and Chin. • Constitute township level Small Grant Committees with members consisting of government officials and representatives from non-government development and financial institutions • Establish township level small grant schemes with specific rules and regulations • Township GAD prepare proposals in collaboration with village leaders • Implementation of selected projects • Develop plan to replicate or upscale projects	• Community level initiatives supported • Resilience of community improved	3 years	GAD	other concerned Government Agencies	UNDP, Action Aid, Oxfam, MWAFF, MWEA, other UN agencies and INGOs	H

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt Agencies	Potential Partners	Priority H, M, L
6.6	Micro-finance Schemes related to DRR	To create alternative livelihood opportunities for communities living in risk prone locations	- Set up micro finance services through community based organizations in 20 townships (5 each in Ayeyarwady, Magway, Rakhine and Kachin) - Provide trainings to villagers on alternative livelihood options - Assist the villagers in establishing market for their products through the involvement of private firms	Alternative livelihood options provided to at-risk communities	4 years	GAD and Cooperative Department, Small Scale Industry Department		UNDP, FAO, PACT Myanmar, Oxfam, Private Firms, other UN agencies and INGOs	H
6.7	Integration of CBDRR into Community Development Projects	To implement sustainable development projects and programs at the grass-root level	- Identify 30 villages in Ayeyarwady and Mandalay Region - Prepare a list of ongoing and planned development projects in these villages - Assist the village groups (Link to 6.3) in identifying elements of disaster mitigation for integration into development projects - The village groups monitor the implementation - Hold regular township level meetings among implementing agencies	CBDRR aspect integrated into community development projects thereby reducing disaster induced losses of the development investments	3 years	GAD	MoBA, Planning Department, GAD, concerned Govt agencies	UNDP, FAO, UN-AIDS, WV, LWF, NGOs, other UN agencies and INGOs	H

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Govt Agencies	Potential Partners	Priority H, M, L
			• DRR issues to be included in the poverty reduction projects at community level						
6.8	Development and Implementation of Community Based Natural Resources Management Programs	To promote sound environmental practices in rural areas	• Form a network of environmental based agencies in 10 townships; 5 each in Ayeyarwady and Shan • Orient the communities on the connection between sound environment and DRR • Assist the community volunteer groups (6.3) to design and develop suitable natural resources management programs based on their needs • Train the groups on monitoring the natural resources base	Awareness and knowledge of community advanced on the linkage between managing local natural resources and reducing disaster risks	3 years	Ministry of Environmental Conservation and Forestry, Local government	Dept of Information and Public Relation, MoAI, concerned ministries and department	UNEP, UNDP, FAO, FREDIA, LWF, Metta Foundation, other UN agencies and INGOs	M
6.9	Documentation of CBDRR Good Practices	To maintain a record of noteworthy and replicable CBDRR practices in the country	• Conduct survey in Rakhine and Ayeyarwady (10 selected townships) for replicable community led good practices • Document the practices • Develop a plan for more survey in other state/Region	Records of CBDRR good practices properly documented for possible replication in the future	3 years	RRD	Dept of Information and Public Relations, MSWRR,	UNDP, ESCAP, ASEAN Secretariat, MIMU, MRCS, NGOs, other UN agencies and INGOs	M

Component 7: Public awareness, Education and Training (HFA 3)

Rationale

Public awareness on Disaster Management is important as simple Do's and Don'ts of disasters can save many lives during disaster. It is important that the content of awareness messages should be consistent, lucid and context specific and it should be conducted at regular intervals so that the knowledge is kept alive in the community to pass on from generation to generation, and ensure that the disaster risk reduction become an integral part of the culture and everyday life of the community. Some educational activities have been started by Government, UN Agencies and NGOs such as Ministry of Education in collaboration with UNICEF has been working on integration of disaster risk reduction into school curriculums. UNESCO with Ministry of Education has developed and distributed Resource Pack in approximately 2,000 schools in severely affected eight townships in Delta and one township in Mandalay Region. UNDP Myanmar has developed posters on Do's and Don'ts of different disasters.

However, there is a need to upscale these pilot projects and also to widen the scope to cover whole Myanmar. Also, these activities need to be conducted regularly and a few additional activities have to be implemented to enhance the effectiveness. The sub-components below aim to deepen and inspire greater interest in disaster risk reduction, to encourage the design and implementation of creative and innovative interventions and to anchor the principles that strengthen the DRR commitment.

Planned Sub-Components

Sub-Component 7.1: Awareness through International Day for Disaster Reduction

It will serve as the constant reminder of the pledge and dedication the country has made towards reducing the risk of disasters. The 13th October is being observed by United Nations as the International Day for Disaster Reduction and ASEAN Day for Disaster Reduction. In Myanmar, International Day for Disaster Reduction has been observed since 2010. The programs will include award scheme for best risk reduction practices, essays, articles and painting competitions, drills and demonstrations for the public. These programs will be up scaled to the whole country.

Sub-Component 7.2: National Public Awareness Program

Under the leadership of MDPA and MSWRR, directives will be issued to all Regional and State Disaster Preparedness Agencies for the development of 5-year public awareness programs corresponding to the local hazards and risk. Based on the Regional/State plans, the National Public Awareness Program will be prepared. On pilot basis, 20 townships each from Yangon, Mandalay, Bago, Rakhine and Shan Region/State will be selected for implementation of the program under the supervision of local Disaster Preparedness Agencies.

Sub-Component 7.3: Awareness through School and School Curriculum

The Department of Educational Planning and Training under the Ministry of Education has collaborated with UNICEF since the early 2000 on inclusion of disaster risk related lessons (basic causes and impacts of hazards) in Primary Life skills Curriculum. In secondary level particularly in grades 6, 7 and 8, the related lessons will be included in the revised curriculum which is still in the process of revision and trial in 3 townships. It also proposes to revise the curriculum of the Education Colleges in the relevant subjects in context of risk reduction. In collaboration with Ministry of Education, UNESCO has initiated Myanmar Education Recovery Programme since March 2009, which aims to develop processes, learning kits and trainings for developing relief and emergency response plans for disaster risk reduction education giving communities and children a role in the recovery and DRR process.

Sub-Component 7.4: Awareness through University Curriculum

Disaster risk reduction is an emerging field and requires research and development on its various sub-themes. The sub-component '*Awareness through University Curriculum*' aims to create awareness and also promote research. The process can start with constitution of an Expert Panel consisting of university professors, educational specialists and disaster risk reduction professionals, which will identify suitable subjects along with DRR topics for incorporation. The course will be revised and accordingly course material will be developed. It will have component for research and development in area of disaster risk reduction.

Sub-Component 7.5: Expansion Plan for Disaster Management Training

Disaster management related trainings have been provided in Myanmar for government employees by Relief and Resettlement Department (RRD), Department of Health, Department of Traditional Medicine, Fire Services Department, Ministry of Education and other agencies. For Ministry of Education, UNESCO's Myanmar Education Recovery Programme will build capacity of 150 township education officials and 2000 school principals in disaster awareness and preparedness through a series of educational planning and management modules.

The scope of the sub-component includes review of the existing training materials and to upgrade it at par with the international or regional courses. The proposed process include (1) Review of the feedbacks received from the participants of past trainings and (2) Constitution of Training Material Review Committee (with representatives from RRD, Health, FSD and MoE, and NGOs). Three priority training courses that should be taken up for review and upgrading are Disaster Management Course (DMC), Community based Disaster Risk Reduction (CBDRR) program and Training of Trainers (ToT) program.

The revised materials on DMC and CBDRR will be tested in 20 selected townships in the first year of the project and the outcomes will be incorporated in the final materials before

expanding the trainings to all states and Regions. Both trainings will incorporate livelihood related elements in the module. The target groups for the trainings will be local government authorities. The 20 townships to be selected will be the same as those under sub-component (7.2) '*National Public Awareness Program*' from Yangon, Mandalay, Rakhine and Shan.

Sub-Component 7.6: Training for Emergency Preparedness and Response at Township Level

While the previous sub-component deals with the trainings on overall management and planning issues related to disaster risk reduction, this sub-component will focus on specific response tasks at the township level. The existing emergency preparedness and response curriculums will be reviewed, upgraded and pilot tested in 15 townships across Myanmar. The trainings will be conducted on First aids, Search and rescue, Warehouse management and Relief distribution. This component will be led by Fire Services Dept.

Sub-Component 7.7: Enhancing Training Capacities

This sub-component will be the continuation of the sub-component (7.5) '*Expansion Plan for Disaster Management Training*'. The revised ToT trainings will be pilot tested in 10 townships in Mandalay Region and Rakhine State, same townships as in sub-components (7.2) '*National Public Awareness Program*' and (7.5) '*Expansion Plan for Disaster Management Training*', in the first year and any adjustments required will be carried out based on the experiences. It will also review the existing Training of Trainers (ToT) program of MSWRR.

Sub-Component 7.8: Special Awareness Program

The Special Awareness Program will concentrate on preparing and publishing materials on emerging issues like climate change as well as on specialized topics like livestock management. At the same time, the program will look at reaching special vulnerable groups and creating materials specifically for them. However, as the first activity, the sub-component will support identification of one particular topic, designing and preparation of awareness materials and testing them at the community level in 6 townships in Mandalay and Ayeyarwady Region. Revisions will be undertaken as needed and the final version will be printed and distributed widely through both official and NGOs channels. Also, television series and radio talks will be organized to raise awareness on Disaster Risk Reduction.

Sub-Component 7.9: Establishment of Disaster Management Training Center

Myanmar is vulnerable to multiple hazards, hence there is a need of a dedicated national level institution for technical support on Disaster Management to Ministries, Departments and other institutions at Region/State and below levels. It will also act as the technical advisory body to Sub-Committees of MDPA. It will also collaborate with similar institutions in ASEAN and other countries for research and development. The existing Disaster Management Training Unit of RRD will be the key entity for creating a National Disaster Management Training Center in Myanmar. RRD with technical support from organizations like ADPC will lead this activity.

Sub-Component 7.10: Research and Development in Disaster Risk Reduction

Looking forward to nurturing researchers with disaster risk reduction focus and to foster pioneering research of international standard, this sub-component will support the development of a national level research and development program under the leadership of Ministry of Social Welfare, Relief and Resettlement, in close collaboration with Research Division of RRD. The program will catalog the priority areas for research and each ministry will be requested to oversee the development of related topics. In addition, the sub-component will assist in identifying and approaching potential financial supporters for research activities and will arrange for commissioning of research papers on yearly basis. This will be linked with the ongoing national and international research and development initiatives such as university, industrial and departmental research centers.

Sub-Component 7.11: Regional Networking and Knowledge Sharing on Disaster Risk Reduction

Many countries in Asia have developed comprehensive national level disaster risk reduction programs and some of them have successfully implemented it. It is important to create platform for information exchange on disaster risk reduction with ASEAN. The Ministry of Social Welfare, Relief and Resettlement with technical assistance from international and regional organizations will develop a web portal where disaster risk reduction experiences of the ASEAN countries are uploaded. The website will be jointly hosted and moderated by ASEAN, DMH, Department of Health, Department of Traditional Medicine, RRD, UNDP and ADPC. The website, eventually, will be extended to include more Asian countries other than ASEAN member countries.

Table 10

Component 7: Public Awareness, Education and Training

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Government Agencies	Potential Partners	Priority H, M, L
7.1	Awareness through International Day for Disaster Reduction	Create awareness on disaster in society	- Observe International Day for Disaster Reduction on 13 October every year - Essays, articles and painting competition, drills and demonstration for public - Award scheme for best risk reduction practices - Promote these programs to other Regions/States, District and Townships	Awareness created on Disaster risk reduction	4 years	MDPA, MSWRR	Regional and State DP Agencies, Fire Service Dept, MoE	UNICEF, UNDP, UNIC, ASEAN, and NGOs, DRR Working Group, other UN agencies and INGOs	M
7.2	National Public Awareness Program	To raise the awareness of general public on the various hazards and their associated risks	- Issue decrees to Regions and State DP Agencies to develop 5-year public awareness programs within their jurisdictions and to submit to MDPA - A comprehensive National Public Awareness Program is developed based on the Region/ State plans - Implement the program in 20 Townships (in Yangon, Mandalay, Bago, Rakhine, Shan) in the first year under the supervision of Region/ State and township DP Agencies.	- Capacity of Region/ State and Township level DP Agencies strengthened on public awareness raising - Informed public ready to take part in preparedness, response, relief and recovery activities	4 years	MDPA, MSWRR	MoE, Region/ State and Township DP Agencies, other concerned Govt agencies	UNICEF, MRCS, SC, NGOs, other UN agencies and INGOs	H
7.3	Awareness through School and School Curriculum	To create a culture of safety through	Develop materials (teachers' guide and students' book) for secondary school level with the inclusion of DP	Knowledge and understanding on natural	3 years	Myanmar Education Committee, Concerned	Other concerned departments	UNICEF, UNESCO, MRCS, ADPC,	H

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Government Agencies	Potential Partners	Priority H, M, L
		integration of DRR issues in the formal basic education system	elements in “Life Skills” subject Revise curriculum of Education Colleges, particularly with regards to Life Skills subject	disaster management enhanced Competent teachers and education officers raised		13 Ministries		NGOs, other UN agencies and INGOs	
7.4	Awareness through University Curriculum	To enhance the DRR integration in all relevant sectors	- Constitute an Expert Panel of professors, educational specialists and DRR professionals - Seek advice and recommendations from the Panel for elaboration of DRR elements in relevant university and institutions - Update/ revise the related curriculum with supplementary reading materials - Encourage ground-breaking research works (link to 7.10)	Understanding of DRR ingrained in the mindset of key professionals	4 years	Myanmar Education Committee, Concerned 13 Ministries	Other concerned departments	UN Agencies, FAO, Myanmar Arts and Science Association , NGOs, other UN agencies and INGOs	M
7.5	Expansion Plan for Disaster Management Training	To enhance better understanding of disaster risk reduction by all government sectors	- Form a Training Material Review Committee consisting of representatives from various concerned agencies - Review of existing training materials - Develop a system to seek feedbacks from previous training participants of DM courses conducted under various departments	- DRR knowledge of government employee enhanced - Advocates produced for integration of DRR in all sectors	3 years	RRD	Fire Services Dept., Dept. of Health, Dept. of Social Welfare, together with Township DP Agencies and Govt. Depts.	UNDP, UNHCR, ADPC MRCS, CBI, NGOs, other UN agencies and INGOs	H

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Government Agencies	Potential Partners	Priority H, M, L
			(including ToTs) Update and standardize the training materials for three courses: DMC, CBDRM and ToT, based on the participants' feedback and experts' opinions						
7.6	Training for Emergency Preparedness and Response at township level	To further develop disaster management and risk reduction capacities at the township level	- Review existing training curriculums on emergency preparedness and response - Upgrade training materials to international standard in collaboration with MRCS, UN Agencies and other NGOs - Based on the needs, design and develop new programs - In 15 townships across Myanmar, conduct a series of trainings	Emergency preparedness and response capacities enhanced at the township level	2 years	Fire Services Dept, GAD	RRD, Health Dept., Irrigation Dept, Department of Agriculture	UNOHA, UNDP, WHO, FAO, UNAIDS, UNICEF, MRCS, CBI, JEN, MRCS, WV, SC, UNFPA, NGOs, other UN agencies and INGOs	H
7.7	Enhancing Training Capacities	To create a multiplier effect in spreading DRR knowledge and skills	- MSWRR in close partnership with General Administration Department generate plans for expansion of ToT trainings - Pilot test the new training materials in 10 townships in the first year (5 each from Mandalay and Rakhine).	Proficient DRR trainers produced	2 years	MSWRR, RRD, Region/State DPA	Fire Services Dept., Dept of Health, Dept of Traditional Medicine, Dept. of Social Welfare, GAD	UNDP, FAO, UNICEF, MRCS, CBI, ADPC, NGOs, other UN agencies and INGOs	H

Sub-Components	Title	Objectives	Activities	Expected Outcomes	Estimated Duration	Lead Agency	Other Government Agencies	Potential Partners	Priority H, M, L
			- Monitor and evaluate results of the trainings and carry out changes as necessary - To review existing ToT's of MSWRR						
7.8	Special Awareness Program	To educate the general public on emerging issues in association with DRR	- Prepare and publish public awareness materials (posters and booklets) on emerging issues such as climate change and livestock management - Test the materials at the community level in 3 Townships in Mandalay and 3 in Ayeyarwady and undertake revision as required - Print and distribute the materials - Carry out follow up visits to monitor the usefulness of the materials and for periodic updating process - Television series and radio talk on public awareness	The public kept aware of up-to-date issues and trends	3 years	MSWRR	DMH, MoI, Dept of Health, Dept of Traditional Medicine, MoAI, MOECAP, Ministry of Transport, Ministry of Education, Ministry of Information and other concerned ministries	UNDP, UNEP, FAO, WHO, UNFPA, WFP, UNICEF and NGOs, MRCS, other UN agencies and INGOs	M
7.9	Establishment of Disaster Management Training Center	To nurture future disaster risk reduction professionals	- Identify a location for the center - Prepare programs and trainings to be offered - Recruit skilled personnel - Establish a Disaster Management Training Center at Central Fire	Disaster risk reduction professionals nurtured and created	4 years	RRD	Concerned Govt Depts	ADPC, SC, JICA, NGOs, other UN agencies and INGOs	H

			Services Training School in Pyin Oo Lwin						
7.10	Research and Development in Disaster Risk Reduction	To keep abreast with latest global trends in terms of DRR practices and understanding	• Develop a national program to support research activities under the MSWRR, in close collaboration with Relief and Resettlement Department (Research and Development Division). • Identify priority areas for research in DRR • Assign each member ministry to oversee the development of concerned research topic. • Identify potential supporters • Commission research papers on yearly basis.	• Active researchers with DRR focus nurtured • Pioneering research produced and presented at global events	4 years	MSWRR	CSO, Myanmar Survey and Research, Forest Dept, Forest universities and technical institution concerned Govt Depts	UNDP, FAO, MES, SC, Myanmar Arts and Science Association, NGOs, other UN agencies and INGOs	M
7.11	Regional Networking and Knowledge Sharing on Disaster Risk Reduction	To create a platform for countries in the region to share their experiences and learn from each other	• Develop a website where DRR experiences of ASEAN countries are uploaded • Jointly hosted by RRD, Dept. of Health, ASEAN, UNDP and ADPC in 1st year • Establish a system for regular updation of website • Extend the website content to cover other Asian countries (outside ASEAN)	Regular information sharing between Asian countries made possible with regards to DRR initiatives	4 years	MSWRR, Dept of Health, Dept of Traditional Medicine	DMH, Forest Dept	UNDP, WHO, FAO UNOCHA, ESCAP, UNAIDS, UNICEF, ADPC, ASEAN, Bi-lateral Agencies and other interested agencies	M

Chapter 3: Actions to be taken for the implementation of MAPDRR

The Myanmar Action Plan on Disaster Risk Reduction [MAPDRR] proposes the following approach towards its implementation within the context of existing institutional arrangements for disaster management in Myanmar.

3.1 Myanmar Disaster Preparedness Agency [MDPA] to Steer and Guide Implementation of MAPDRR

The Myanmar Disaster Preparedness Agency [MDPA], chaired by the Union Minister for Social Welfare, Relief and Resettlement, will steer and provide overall guidance on implementation of MAPDRR projects. The MDPA will also assist in overall coordination among Union ministries and departments for smooth implementation of MAPDRR as most of the projects involve more than one ministry.

3.2 Role of Task Force and Working Groups in providing Technical Support for Implementation of MAPDRR

The Inter-Agencies Task Force with the coordination of Director General, RRD under the guidance of MSWRR and Working Groups were constituted to guide the development of MAPDRR. To assist the MDPA and to provide technical assistance for implementation of MAPDRR, the Task Force and Working Groups will continue working. There could be certain changes in membership, if required. And UN-Habitat becomes a Task Force Member in 16th Task Force Meeting. The Task Force will provide overall technical assistance and facilitate coordination among the concerned ministries and departments and serve as a bridge with key partners namely UNDP, UNOCHA, MRCS, MES, MGS, ASEAN and ADPC. It can also organise forums seeking technical inputs from ministries and departments, academic institutions, UN agencies, regional bodies and NGOs. The Task Force can act as a forum for consultation and discussion among the Lead agencies along with partners to bring synergy in projects having linkages.

The Working groups will help in facilitating action on the specific sub-components and assist the lead ministries and departments by providing technical inputs and coordinate the activities of the specific sub-components.

3.3 Partnership with UN Agencies, Regional Bodies, Professional Associations and NGOs

The projects identified under MAPDRR are of wide range, which requires resources, technical expertise and collaboration with other development partners. UN Agencies, Regional Bodies, Professional Associations, NGOs and Academic Institutions are involved in Disaster Management in Myanmar and it is important to forge partnership to maximize efforts. The lead ministries/departments may work out partnership with concerned UN Agencies, Regional Bodies, NGOs and others.

In establishing partnership with UN Agencies, Regional bodies, NGOs and other stakeholders, working dialogues and partnerships should be established with

- UN Disaster Management Team (UNDMT)/United Nations Country Team (UNCT)
- Non-Resident UN Agencies including UNESCAP, WMO, UNISDR and IOC
- Humanitarian Country Team (HCT)
- DRR Working Group
- Civil Society Forum on DRR
- Myanmar Red Cross Society
- Regional institutions such as ASEAN, Mekong River Commission (MRC), ICIMOD and ADPC
- Interested Bilateral Cooperation Development Partners

3.4 Funding requirement and Resource Mobilisation

The 65 Sub-Components identified herein cover Institutional developments, capacity building, awareness generation and inclusion of DRR in curriculum and structural interventions such as construction of multi-hazard shelters and instrumentation for early warning generation. All projects require resources and some of the structural measures require substantial resource mobilisation.

Multiple source of funding are required for undertaking these sub-components and Government budgets is possible source of funding. These state resources should be supplemented by external resource through Donors, UN Agencies, Regional bodies, NGOs, etc as well as from technical assistance from partner governments in the region (Both ASEAN and immediate neighbours).

3.5 Implementation of Priority Sub-Components

The lead agencies along with identified government agencies in collaboration with other partner agencies will initiate implementation of priority Sub-Components. High priority sub-component will be implemented in 2012-2013 and other sub-components will be implemented as per financial year.

The role of the Task force will be to facilitate support and resources for the projects, while implementation responsibility will lie with the lead agency. In implementing projects, the lead agency will work with other identified agencies, appropriate partners and UN Agencies.

3.6 Periodic Review by Task Force

The MAPDRR aligns with the Hyogo Framework for Action and the programs/projects identified shall be implemented within a timeframe. The Task Force will setup a monitoring system to track progress of development of projects identified for implementation and it will also review the progress of implementation periodically.

3.7 Inclusive approach for Vulnerable Groups

The MAPDRR projects will be inclusive and will include gender, child, aged and other vulnerable groups issues. It will also try to address the special needs of these vulnerable groups in context of Disaster Risk Reduction.

3.8 Periodic Reporting to MDPA

The MDPA being the steering committee of MAPDRR will review the overall progress of MAPDRR implementation at regular interval through the Task Force mechanism. The Task Force will periodically update and submit the status report on MAPDRR implementation to the MDPA.

3.9 Linkages with On-going Developmental Programmes

Myanmar is committed to various Global Frameworks and Processes, particularly related to achieving the Millennium Development Goals (MDGs), environment, sustainable development and climate change. DRR being a cross-cutting issue is integrally linked to several of these. Various Ministries of Government are working to achieve the targets under MDGs in cooperation with concerned UN Agencies and Partners. Over time MAPDRR must identify and establish working links and synergistic partnerships with

- National Programs of concerned Ministries to Implement MDGs
- National Adaptation Plan of Action on Climate Change
- National Sustainable Development Strategy

The lead agencies dealing with some of the above are members of the MAPDRR Task Force and can facilitate the interaction and partnership.

3.10 Systematic implementation of MAPDRR

The MAPDRR needs to be seen as a Framework as well as Action Plan for DRR activities and its implementation calls for coordinated and synchronized action from all stakeholders of Disaster Risk Reduction. The stakeholders can align its DRR activities in line with the MAPDRR Framework and contribute towards its implementation.

It is important to implement the MAPDRR in comprehensive and systematic manner by all stakeholders under the leadership of the Government of the Republic of the Union of Myanmar to achieve the National DRR Goal

‘To make Myanmar Safer and more Resilient against Natural Hazards, thus Protecting Lives, Livelihoods and Developmental Gains’

By doing so, it can support the implementation of Standing Order and the Action Plan of MDPA. As the Action Plan is aligned with HFA and AADMER, the implementing the Action Plan itself is the implementation of the government’s commitment in HFA and AADMER. While implementing the projects identified in the Action Plan, the funding and technical support from UN Agencies, ASEAN and other non-governmental organizations can be available apart from the resources of the Government. The Action Plan can be used as a short term and long term plan for future DRR intervention. In future, step by step, it can also build the community which is safer and more resilient from disaster.

Annexure I

Collection of Information for Myanmar Action Plan on Disaster Risk Reduction (Questionnaire)

Background

The Republic of the Union of Myanmar along with 167 other countries adopted the Hyogo Framework for Action [HFA] in 2005, which aims '*To make the World Safer by 2015*'. So too, Myanmar is a signatory of the ASEAN Agreement on Disaster Management and Emergency Response (AADMER). To help implement these commitments and attain the expected outcome of the HFA and AADMER, the preparation of Myanmar Action Plan for Disaster Risk Reduction [MAPDRR] has been initiated. A Task Force, under the chairmanship of Director General, Relief and Resettlement Department, has been constituted by the Ministry of Social Welfare, Relief and Resettlement to draft MAPDRR. The seven proposed components of the MAPDRR are:

1. Policy, Institutional arrangements and further institutional development
2. Hazard, vulnerability and risk assessment
3. Multi- hazard Early Warning Systems
4. Preparedness and Response Programs at National, State/ Region and Township levels
5. Mainstreaming of Disaster Risk Reduction into Development
6. Community based Disaster Preparedness and Risk Reduction
7. Public Awareness, Education and Training

The objectives of this exercise are **to identify new projects/activities** for Disaster Management, for multiple hazards, involving Government agencies and its partners. Also, to profile the **completed** and **ongoing projects** related to Disaster Management. Information on following questions will be help in achieving the objectives.

Questions

1. What are the **completed** projects/activities, in the last 3 or more years, which are related to Disaster Management? For each project following information may be provided.
 - Title of project or program
 - Activities
 - Output/Outcome
 - Implementing agency/ies and partner/s

-
- Location
 - Period/Duration
 - Any additional information

2. What are the **ongoing** projects/activities which are related to Disaster Management?

For each project following information may be provided.

- Title of project or program
- Activities
- Output/Outcome
- Implementing agency/ies and partner/s
- Location
- Period/Duration
- Any additional information

*Brochure, reports etc on **completed** and **ongoing** projects can be shared to answer Question 1 and 2.*

3. Please identify **3 new projects/activities for future**, within the framework of attached DRR Components and Sub-Components that the Ministry/Agencies would like to prioritize for implementation? Additional components and sub-components may be added. For each project, following information may be provided.

- Title of project or program
- Goal/Objectives
- Activities
- Output/Outcome
- Estimated Period/Duration
- Suggested Lead agency/ies and Partner/s
- Location
- Cost/Budget (approximate)
- Priority (High/Medium/Low)
- Linkages to ongoing or past activities
- Any additional information

Annexure II

List of Agencies which provided information on Past, On-going and Future DRR Projects		
Sr. No.	Category	Organization/Departments
	Government (Ministry)	Departments
1	Ministry of Agriculture and Irrigation	Myanmar Agriculture Services
2		Irrigation Department
3	Ministry of National Planning and Economic Development	Central Statistical Organisation
4		Planning Department
5	Ministry of Social Welfare, Relief and Resettlement	Fire Services Department
6		Relief and Resettlement Department
7		Department of Social Welfare
8	Ministry of Construction	Public Works
9		Department of Human Settlement and Housing Development
10	Ministry of Transport	Department of Meteorology and Hydrology
11	Ministry of Environmental Conservation and Forestry	Forest Department
12		Planning and Statistics Department
13		National Commission for Environmental Affairs
14		Dry Zone Greening Department
15	Ministry of Telecommunications, Posts and Telegraphs	Myanma Posts and Telecommunications
16	Ministry of Livestock Breeding and Fisheries	Directorate of Livestock and Fisheries
17	Ministry of Health	Department of Health
18	Ministry of Education	Higher Education Department (Upper Myanmar)
19		Department of Educational Planning and Training
20		Institutes, Universities, Colleges
21	Ministry of Science and Technology	Advanced Science and Technology Department
22		Yangon Technology University
23	Ministry of Home Affairs	General Administration Department
24	Nay Pyi Taw City Development Committee	

Sr. No.	Category	Organization/Departments
25	UN Agencies	United Nations Development Programme (UNDP)
26		Food and Agriculture Organization of the United Nations (FAO)
27		United Nations Human Settlements Programme (UN-HABITAT)
28		UN Environment Programme (UNEP)
29		United Nations Educational, Scientific, and Cultural Organization (UNESCO)
30		United Nations Children's Fund (UNICEF)
31		Office for the Coordination of Humanitarian Affairs (OCHA)
32		World Food Programme (WFP)
33		World Health Organization (WHO)
34	Regional Bodies	Association of Southeast Asian Nations (ASEAN)
35	International Federation of Red Cross and Red Crescent Societies, Myanmar delegation	
36	Myanmar Red Cross Society (MRCS)	
37	INGO/NGOs	Agency for Technical Cooperation and Development (ACTED)
38		Action Contre La Faim (ACF)
39		Adventist Development and Relief Agency, Myanmar (ADRA, Myanmar)
40		Capacity Building Initiative (CBI)
41		CARE Myanmar
42		French Red Cross, Myanmar
43		German Agro Action
44		Oxfam
45		Malteser International
46		Ranmarwaddy Rural Development Studies (RRDS)
47		Save the Children (SC)
48		Terre des hommes Italia
49		World Vision Myanmar
50		Japan Emergency NGOs (JEN)
51		Forest Resource Environment Development and Conservation Association (FREDA)
52		Norwegian Refugee Council (NRC)
53		International Rescue Committee (IRC)
54		Action Aid Myanmar
55		Lutheran World Federation (LWF)
56		Metta Foundation
57	Professional body	Myanmar Engineering Society (MES)
58		Myanmar Geosciences Society (MGS)

Annexure III

Composition of the MAPDRR Task Force

S/N	Ministry	Department
1	Ministry of Social Welfare, Relief and Resettlement	Relief and Resettlement Department
2		Fire Services Department
3		Department of Social Welfare
4	Ministry of Agriculture and Irrigation	Myanmar Agriculture Services
5		Department of Irrigation
6		Department of Agriculture Planning
7	Ministry of Environmental Conservation and Forestry	National Commission for Environmental Affairs
8		Department of Forest
9		Planning and Statistics Department
10	Ministry of Home Affairs	General Administration Department
11	Ministry of Transport	Department of Meteorology and Hydrology
12	Ministry of Health	Department of Health
13	Ministry of Livestock Breeding and Fisheries	Livestock Breeding and Veterinary Department
14	Ministry of Education	Department of Education Planning and Training
15	Ministry of National Planning and Economic Development	Department of Planning
16	Ministry of Information	Myanma Radio and Television
17	Ministry of Construction	Public Works
18	Ministry of Communications, Posts and Telegraphs	Myanmar Posts and Telecommunications
19	Office for the Coordination of Humanitarian Affairs (OCHA)	
20	United Nations Development Programme (UNDP)	
21	Myanmar Red Cross Society (MRCS)	
22	Myanmar Engineering Society (MES)	
23	Myanmar Geosciences Society (MGS)	
24	Asian Disaster Preparedness Center (ADPC)	
25	UN-Habitat	
	Association of Southeast Asian Nations (ASEAN) (observer)	

Annexure IV

Composition of the MAPDRR Working Groups

Working Groups	Thematic Focus	Memberships
Working Group 1	Hazard, Vulnerability Assessment and Early Warning (MAPDRR components 2 and 3)	•Meteorology and Hydrology Department, Ministry of Transport
		•Department of Forest, MOECF
		•Myanmar Post and Telecommunications, Ministry of Communications, Posts and Telegraphs
		•Ministry of Information
		•Ministry of Science and Technology
		•Irrigation Department, MOAI
		•General Administration Department
		•Myanmar Engineering Society
		•Myanmar Geosciences Society
Working Group 2	Policy, Institutional Arrangements, Preparedness and Response (MAPDRR components 1 and 4)	•Relief and Resettlement Department, Ministry of Social Welfare, Relief and Resettlement
		•Fire Services Department, Ministry of Social Welfare, Relief and Resettlement
		•Department of Health, Ministry of Health
		•General Administration Department
		•Office for the Coordination of Humanitarian Affairs (OCHA)
		•Myanmar Red Cross Society (MRCS)
Working Group 3	Mainstreaming Disaster Risk Reduction into Development (MAPDRR component 5)	•Department of Planning, Ministry of National Planning and Economic Development
		•Ministry of Construction
		•Myanmar Agriculture Service, Ministry of Agriculture and Irrigation
		•Ministry of Education
		•National Commission on Environmental Affairs
		•Myanmar Posts and Telecommunication
Working Group 4	Community Based Disaster Risk Management, Public Awareness, Education and Training (MAPDRR components 6 and 7)	•Ministry of Education
		•Ministry of Social Welfare, Relief and Resettlement
		•Livestock Breeding and Veterinary Department, Ministry of Livestock Breeding and Fisheries
		•Department of Health, Ministry of Health
		•Ministry of Information
		•Ministry of Science and Technology
		•United Nations Development Programme
		•Myanmar Red Cross Society (MRCS)