

Chapter I

Introduction

1.1 Background

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 are exposed to landslide and drought risks. The Cyclone Nargis (2008) was the worst natural disaster in the living memory of Myanmar.¹

Disaster is a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources. The potential disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or a society over some specified future time period. As a result, an adverse long term social and economic impacts of disasters are more inevitable to the vulnerable communities. Thus, disaster risk reduction becomes an integral part of the development planning. The concept is the practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.

The government of Myanmar recognizes the importance of disaster management in national building and issues orders to set up institutional arrangements for disaster management at different administrative levels.² The township level administrative is vital in Myanmar administrative system as it provides a crucial link from grassroots level to national level.

In addition, most of the government departments are instituted at township level. Thus there is a need of a disaster risk reduction plan at township levels and the government of Myanmar had developed a “Guideline on Township Disaster Management Plan” to facilitate the development of action plan at each and every townships in Myanmar.

¹ Myanmar Action Plan on Disaster Risk Reduction (MAPDRR)

² National Standing Order On Natural Disaster Management (Order no. 20 and 46), the Government of Myanmar

Having a township level disaster management plan (TDMP) is very essential as it plays a crucial role to communicate and coordinate effectively among government departments, as well as village to village tracts then village tracts to township level.

Kyaikmaraw Township is situated in Mon State. Flood is the main hazard that Kyaikmaraw is facing almost every year since one of the major river of Mon State “Attayan” is flowing from south to north across the town. Rainfall induced flooding is a recurring phenomenon across the township while some parts of the town is exposed to fire. As per the Hazard Profile of Myanmar, Mon State is one of the flood prone areas.

The State government had endorsed the “Mon State Fire and Disaster Preparedness Law” in April 2013. The endorsement of the Law is even earlier than the “National Disaster Management Law (DM Law)” which was endorsed by the President in July 2013. Kyaikmaraw Township Disaster Management Committee (TDMC) chair by Township Administrator had revised the TDMP in May 2013.

The structured of the revised TDMP is not divided into chapters and there is very little information of the hazard, which is also not prioritized. Moreover, the information described in the existing TDMP doesn’t cover the essential data in the Township to facilitate the effective implementation of the Plan. Therefore, there was a need of revising the TDMP in order to be more closely aligned with the “National Guidelines on Development of TDMP” and better structured comprehensively.

It was aims to efficiently manage the disaster preparedness & mitigation and response activities in times of emergencies as well as to ensure the sustainability of the interventions and ownership exclusively by Kyaikmaraw TDMC.

The Kyaikmaraw TDMP was developed by holistic consultative approach and qualitative and quantitative methodologies such as questionnaires for TDMC members and for village leaders, focus group discussions, secondary data review on both existing TDMP and other relevant documentations were carried out in order to identify the vulnerability, risk and capacity with due consideration of the local context, which were then incorporated into the plan. The resources available in the township were also identified and included in this plan.

In addition, the consultative meetings took place helped to raise the awareness on disaster risks and management at the same time built the capacity of TDMC members. Furthermore, the plan was developed aligning with the key documents on Disaster Management of Myanmar, such as:

- Myanmar Disaster Management Law

- Standing Order on Natural Disaster Management
- Myanmar Action Plan on Disaster Risk Reduction, and
- Mon State Fire and Disaster Preparedness Law

1.2 Goal and objectives

The goal of Kyaikmaraw Township Disaster Management Plan is for the township to be well prepared, in terms of capacities, knowledge, awareness and resources to cope with the emergency situations and protecting lives, properties and livelihoods from the adverse impacts of natural or manmade disasters. This goal will be achieved through the following strategic objectives:

- To collect the baseline data of Kyaikmaraw Township and develop a proper township profile.
- To thoroughly assess the risks, vulnerability and capacity to identify the gaps, challenges and needs.
- To review the existing Township Disaster Management Plan and revise accordingly with the findings and recommendations.
- To leverage coordination mechanism among various stakeholders for the effective disaster management mechanism.
- To develop a systematic disaster management plan to better prepared, mitigate the risks, emergency response and recovery from impacts of disasters.
- To provide inputs for integrating disaster risk reduction measures into township development plans and monitoring, reviewing and updating of the developed TDMP.

Chapter 2

Kyaik Ma Yaw Township Profile

2.1 Administrative Structure

Kyaikmaraw Township is one of the ten townships of Mon State. Township General Administration Department (GAD) of Ministry of Home Affairs is responsible for all the administrative management in the township. The roles of township administration are exceptionally varied, ranging from land registration and tax collection to local dispute resolution and sovereignty.

The primary responsibility of the Kyaikmaraw Township GAD is to maintain law and order, peace and security within its territory, while at the same time, coordinating and managing other government departments for all aspects of township activities ensuring the effectiveness of the services delivery. The other responsibilities of the township GAD also include the managing electoral process management to ensure the impartiality and justice and supervising body for township budget as well as reviewing the registration of the formation of associations. The township GAD also plays a central role for the welfare of the population, especially in the emergency response activities and accountable for the development of the township as a whole.

There are numbers of other government departments in place for the public administration and services at township level, the list of which can be seen at the table 2. The administrative units of the township are:

Table 1: Administrative Unit of Kyaikmaraw Township

Township	Number of Village Tract	Number of Village	Number of Ward
Kyaikmaraw	44	166	2

Source: Kyaikmaraw General Administration Department

Table 2: List of Government Departments in Kyaikmaraw Township

Sr.	Department	Ministry
1	General Administration Department	Ministry of Home Affairs

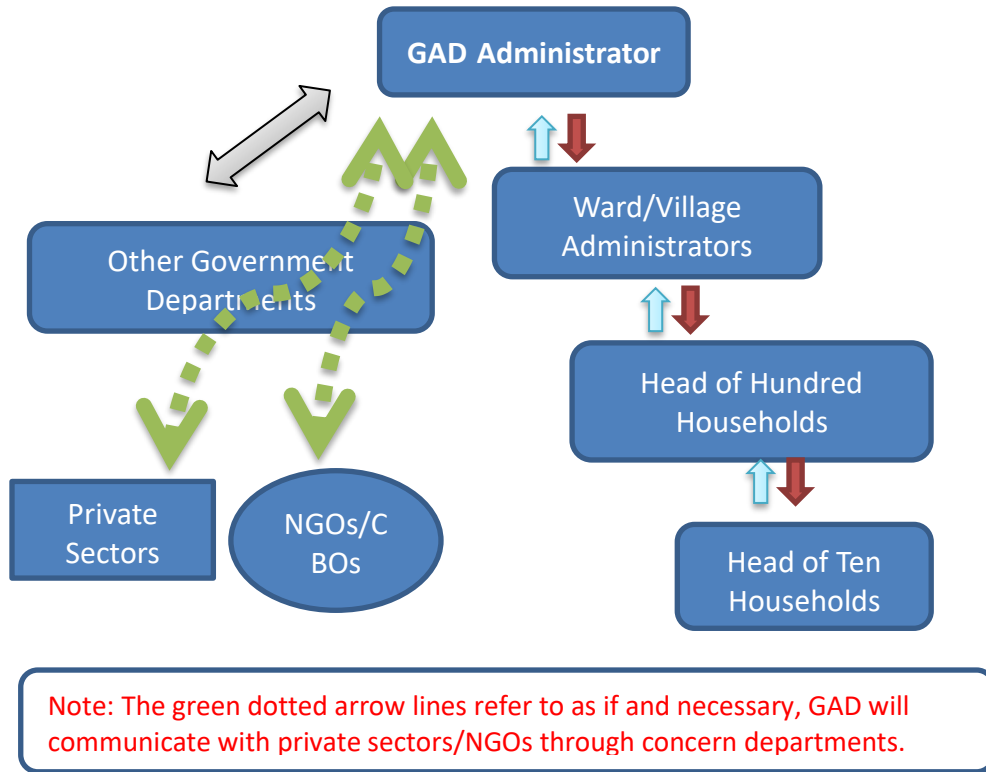
Kyaikmaraw Township Disaster Management Plan

2	Myanmar Police Force	Ministry of Home Affairs
3	Department of Fire Services	Ministry of Home Affairs
4	Basic Education Department	Ministry of Education
5	Planning Department	Ministry of National Planning and Economic Development
6	Health Department	Ministry of Health
7	Department of Traditional Medicine	Ministry of Health
8	Public Works	Ministry of Construction
9	Development Affairs Department	Ministry of Border Affairs
10	Forest Department	Ministry of Environmental Conservation and Forestry
11	Agriculture Department	Ministry of Agriculture and Irrigation
12	Irrigation Department	Ministry of Agriculture and Irrigation
13	Settlement and Land Record Department	Ministry of Agriculture and Irrigation
14	Tele-Communication Department	Ministry of Communication, Post and Telegraph
15	Department of Electric Power	Ministry of Electrical Power
16	Livestock Breeding and Veterinary Department	Ministry of Livestock, Fisheries and Rural Development
17	Immigration Department	Ministry of Immigration and Population
18	Myanmar Economic Bank	Ministry of Finance
19	Internal Revenue Department	Ministry of Finance
20	Information and Public Relations Department	Ministry of Information

Source: Kyaikmaraw General Administration Department

The administrative structure of the township can be seen at the following figure.

Figure 1: Administrative Structure of Kyaikmaraw Township



Source: Kyaikmaraw General Administration Department

2.2 Topography

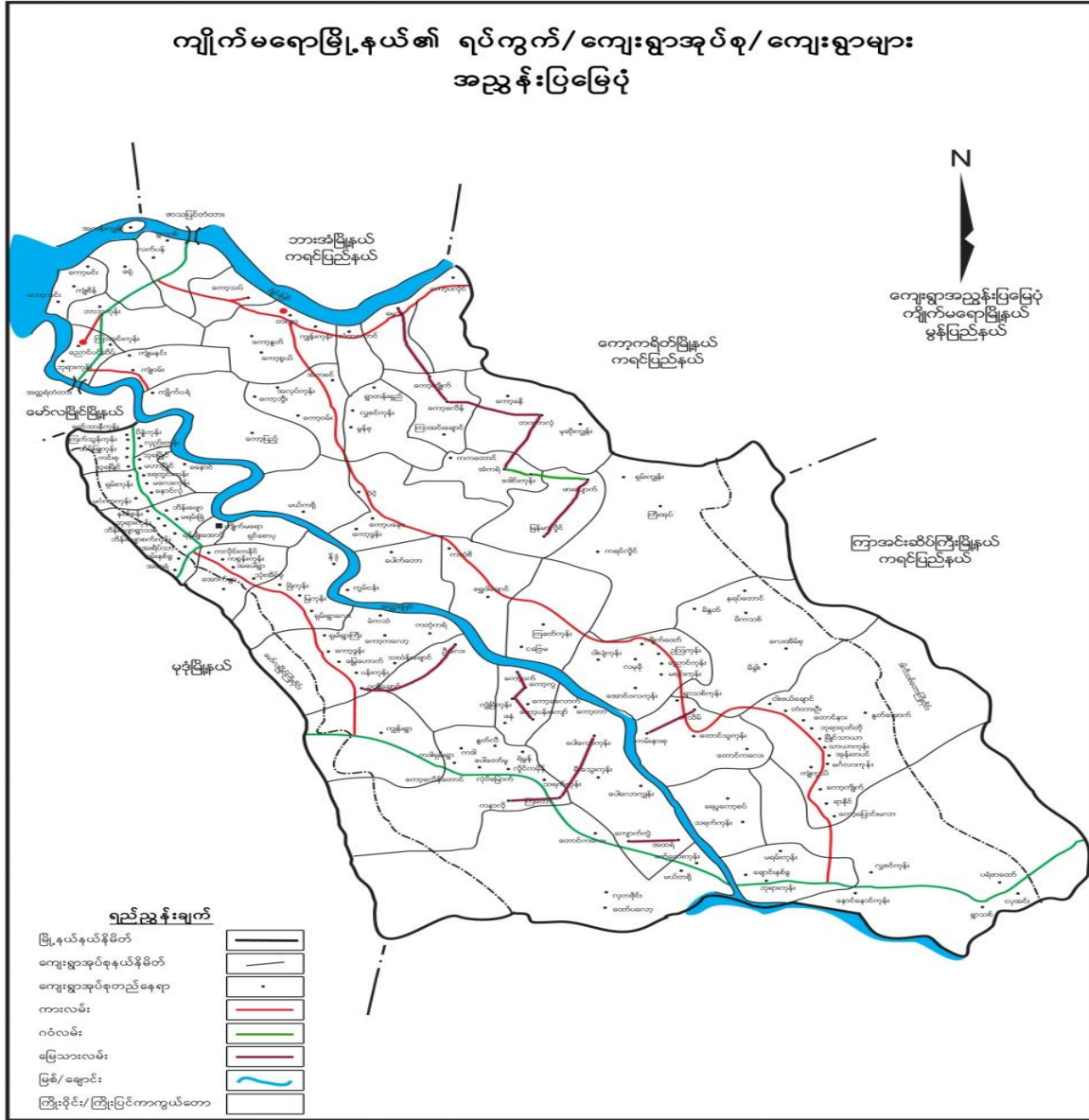
a) A detailed location of the “Kyaikmaraw” Township (coordinates, boundaries, area and main rivers)

Kyaikmaraw Township is one of the townships in Mon State located at the south-east part of Myanmar, adjacent to Mawlamyine, but it is largely rural. Its location is between 16° 7' and 16° 34' north latitudes and between 97° 9' and 97° 50' east longitudes, bordering Kawkareik Township in the east, Hpa-An township in the north and Kyarin Seikkyi township in the south, Kawkareik township and Mudon township in the west. The township is having an area of approximately 516.04 square mile with east- west extends of about 18 miles and a north-south extends of about 40 miles.

Kyaikmaraw Township is only 18 feet above sea level as it is in the low lying plains. The town looks like an oval shape frying pan situated between Jaing river basin on the north of the town, Taung Nyo mountain range on the west and Attaran river basin at middle-west. Attran is one of the famous rivers flowing from south to north across the town. Though the township is in grey area, people are living peacefully and harmoniously. The urbanization ratio is only 6.8%³ as of 2013.

³ JICA Report on Myanmar’s south-east

Figure 2: Location Map of Kyaikmaraw Township



b) Climate

The climate is tropical as it is located in the low latitude zone and near the sea, therefore it experiences the typical wet and dry seasons, and rain is especially heavy in July and August. Over the last five years, the general precipitation days is 135 days with average annual rainfall of 197 inches, and the minimum temperature at 16.0°C and the maximum temperature at 37° C with no changes at all.

c) Land use

The agriculture and horticulture are the main livelihood activity of Kyaikmaraw Township and cultivated lands covered for more than half of the total land, total 57%, agriculture 23% and horticulture 34% respectively. Three reserve forests exist in the township covering 80,000 acres. Of these, some 40,000 acres⁴ have already been converted to rubber plantations. A detailed breakdown of land use is as shown in following table.

Table 3: Land Use Distribution in Kyaikmaraw Township

Sr.	Type of Land	Land Use Distribution by Acre	% of Land
1	Agriculture Land	88810	23%
2	Horticulture Land	127629	34%
3	Uncultivated Land	32013	8%
4	Industrial Land	185	0%
5	Urban Land	9342	2%
6	Forest Reserved Land	72836	19%
7	Wild Land	6614	2%
8	Scrub Land	11819	3%
9	Grazing Land	8066	2%
10	Free Land	21964	6%
Total		379278	100%

Source: Kyaikmaraw General Administration Department

2.3 Demography

a) Population details

Major ethnic groups reside in Kyaikmaraw Township are Mon (7%), Kayin (18%), Bamar (17%) and Shan (1%) with others at (16%). The total number of households and the families' within the township can be seen at the following chart.

⁴ JICA Report on Myanmar's south-east

Table 4: Household and Family in Kyaikmaraw Township

Description	# of Village Tract	# of Village	# of Ward	# of Household	# of Family
Rural	44	166	-	32239	35077
Urban	-	-	2	1897	1918

Source: Kyaikmaraw General Administration Department

Average size of family members is 6 and the sex ratio is almost equally proportionate (0.96:1) in Kyaikmaraw Township with the population growth rate at 1% as of 2012. The breakdown of total population as per March 2013 data is as follows;

Table 5: Population in Kyaikmaraw Township

Description	Under 18		Over 18		Total
	Male	Female	Male	Female	
Urban	4362	4499	1765	1813	12439
Rural	62246	66645	36228	35670	200789
Grand Total					213228

Source: Kyaikmaraw General Administration Department

b) Literacy rate

Literacy refers to a person who can read and write in Myanmar language, Kyaikmaraw Township as any other parts of the country is practicing the primary level compulsory education system. The literacy rate is 97.5%, little bit higher as against to 95.01 % of whole Myanmar rate.

c) Migration

Though the agriculture and horticulture is the main livelihood of the town, there are quite a number of young generation migrated⁵ to Thailand and to big cities in Myanmar, i.e. Yangon. There are also many migrant workers in Kyaikmaraw from other parts of the

⁵ However, there was no specific data available on those migrant workers

country, such as Magway, Bago and Ayerwaddy Divisions, working in rubber production, brick production and palm tree business⁶ as they earned more working in Kyaikmaw, because most of the workforces are migrated to Thailand.

2.4 Basic infrastructure

a) Main road and road types

The main mode of transport in Kyainmaraw Township is by road. Basically, there are three types of roads, asphalt road, stony road and dirt road. Asphalt road is the main road connected to neighboring townships; stony road and dirt road are essentially connecting villages. Another key mode of transport is waterway, as “Attaran River” is dividing the township into two and most of the road networks are unable to use during raining season, therefore have to rely on waterway. The roads in town are maintained either by township development affairs department or by public works.

Table 6: Main Road Networks in Kyaikmaraw Township

Sr.	Routes (main road)	Road Type	Length of Road
1	Kyaikmaraw - Mawlamyine	Asphalt Road	7 miles 4 furlong
2	Kyaikmaraw - Mudon	Asphalt Road	3 miles
3	Kyaikmaraw - Kyarin Seikkyi	Asphalt Road	19 miles
4	Kyaikmaraw - Hpa An	Asphalt Road	40 miles

Source: Kyaikmaraw General Administration Department

b) Bridges

There are two main bridges and many wooden bridges mostly in the villages across the township for the transportation and communication purposes. The type of two main bridges is “Steel Grider Suspension”, one is across the Jaing River with (2900 feet) long constructed in 1994 and the other one is across the Attran River built in 1997 and (1420 feet) long.

⁶ Kyaikmaraw township is pretty much covered with Palm trees and palm fruit and juice are massively produced, a good business for decent earning.

c) Number of hospitals and health centers

As per Kyaikmaraw Township department, there are 2 State own hospitals, capacity of 25 beds and 10 beds respectively. It also has 4 rural health centers and 28 rural health sub-centers. All together 7 medical doctors and 11 nurses with 4 health assistants are looking after those health facilities. The ratio of health professionals and population is 1:30871 for doctors, 1:19645 for nurses and 1:54025 for health assistants for the total population of 216101 in the township. According to the Township Health Department, the number of the health centers against the population is quite sufficient, yet the number of the health personnel is still need to reinforce.

d) Educational institutions

There are 20 nursery schools, 5 primary schools, 11 middle schools, 3 high schools and 2 monastic education entities, enrolling 34,923 students with 1,154 teachers in place, as of March 2013 data.

e) Sources of drinking water

The main source of drinking water in Kyaikmaraw Township is from tube wells and river. Public water supply based on tube wells serves about 500 households with supply capacity of 35,000⁷ gallon per day by Development Affairs Department. Small scale water supply is available by the private sector. There are many individually owned dug wells as well. Rain water is also another source of drinking water, collected and stored with tanks, pots and glazed earthen-jars during wet seasons and use in hot seasons. The township has quite sufficient drinking water all around the year.

2.5 Socio-economic condition

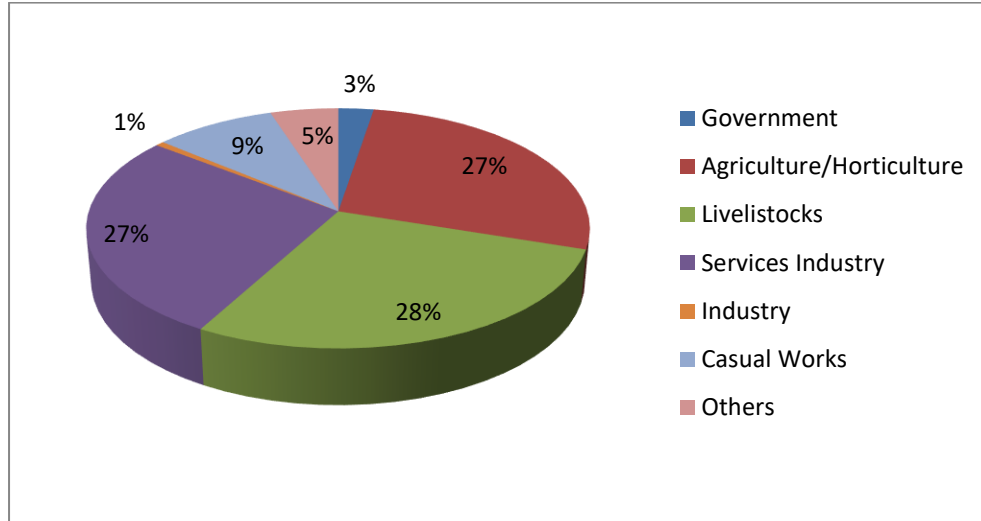
a) Livelihood

The main livelihood of the population is agriculture. There are also some livestock breeding but most of them are animal husbandry for the extra incomes within the families. Therefore, it appears that the portion of agriculture and livestock are almost equivalent, the same share of people are in the service industry with some casual workers, industrial workers and government employees. However, the hidden agenda of the main source of incomes in majority of the population is from the migrant workers in

⁷ JICA Report on Myanmar's south-east

Thailand, it is huge amount unofficially; most of the people working in the agriculture and horticulture are migrant workers from other part of the country.

Figure 3: Working People Proportion as per Livelihood in Kyaikmaraw Township



Source: Kyaikmaraw General Administration Department

b) Agriculture

The main product of the town is the rubber; paddy is second in line followed by groundnut and other seeds and crops. Rice is cultivated during the rainy season and the summer season. Self-sufficiency is attained. Other crops include pulses, groundnut and sesame. Sunflower is cultivated in small area. Vegetables are produced for local consumption. The agriculture production of the different crops can be seen at the following table for the fiscal year 2012-2-13.

Table 7: Crops Yields in Kyaikmaraw Township

2012 - 2013 Year				
Sr.	Crops	Harvested Acre	Yielded	Unit

1	Rubber	45,550	34,167,055	Pound
2	Paddy	83,563	5,807,629	Bucket
3	Groundnut	1,566	68,252	Bucket
4	Sesame	700	6,286	Bucket
5	Sunflower	12	287	Bucket
6	Mung bean	225	3,420	Bucket
7	Pigeon pea	350	5,723	Bucket

Source: Kyaikmaraw General Administration Department

c) Industry

No manufacturing industries exist, other than rubber sheets production and rice mills. However, the Mawlamyine Industrial Zone is in Kyaikmaraw Township territory, which creates some job opportunities for the inhabitants in town. The industrial zone includes vehicle production factory, rubber purging factory, welding workshop, grinding mill and lathe workshop etc.

Chapter 3

Kyaikmaraw Township Disaster Risk Profile

Disaster Risk Profile involved the assessment of hazard and vulnerability faced by the communities in the township as a whole, and analysis of the capacity of exiting TDMC, other government departments and villages. The results identified served as Risk Profile of Kyaikmaraw Township. The contents of this chapter use simple language with no statistic tools to easily understand for non-technical DRM professionals, government departments and even the communities at risk.

The process of conducting risk identification is based on the view of both the technical features of hazards such as their location, intensity, frequency, probability, and also the analysis of the physical, social economic and environment dimensions of vulnerability and exposure, while taking particular account of the coping capabilities to the potential threats of the risks.

3.1 Hazard Assessment

Hazard assessment is an essential first step of the overall risk identification in the area. Therefore, hazards that the Kyaikmaraw Township is exposed to were identified based on the township experiences on disasters and impact analysis of past disasters by analyzing information collected. According to the assessment⁸, one significant hazard “**Flood**” and one considerable hazard “**Fire**” were identified respectively as regular threats to the community in the past likely in the future. The township is not exposed to hazards which are usually associated with meteorological or geological risks as it is relatively distance from the coast line.

Hazard assessment involved gathering and analyzing of basic information on types of hazards and history of them. Collection of data on hazards in terms of their nature, frequency and magnitudes by conducting key informants interviews, quantitative questionnaires and meetings with TDMP working group in Kyaikmaraw Township.

3.1.1 Flood Hazard Assessment

Flooding is a major hazard among other hazards in Myanmar, second only to fire accounting for 11% of all disasters and it is a recurrent phenomenon for most parts of the country. Over 2-million people are exposed to flood hazard in Myanmar every year.⁹ Flooding leads to loss of lives and properties, damage to critical infrastructure, economic loss and health related problems such as outbreak of water borne diseases when the lakes, ponds and reservoirs get contaminated.

The country receives practically all its rainfall between mid-May and October, the rainy season, during which flooding and landslides are common. In Myanmar, the threat of flooding usually occurred in three waves each year: June, August and late September to October with biggest danger arriving in August as peak monsoon rains occurred around that time.¹⁰ Throughout the period of the rainy season, riverine floods and flash floods are most common and they happen when the monsoon troughs or low pressure waves

⁸ The qualitative and quantitative methodologies such as questionnaires for TDMP members and for village leaders, focus group discussions, secondary data review on both existing TDMP and other relevant documentations were used for the assessment. A series of consultative meetings were also conducted with the different stakeholders at Kyaikmaraw Township.

⁹ Hazard Profile of Myanmar, July 2009

¹⁰Guideline on Township Disaster Management Plan

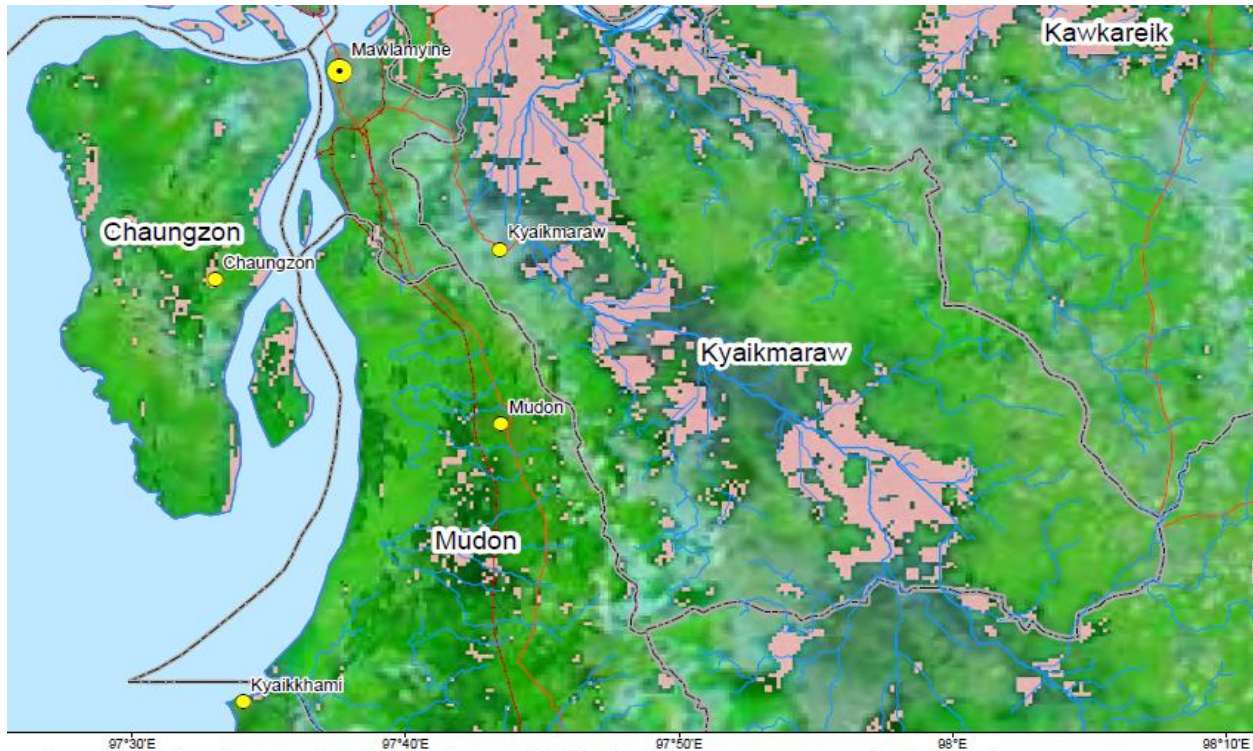
superimpose on the general monsoon pattern resulting in intense rainfall over strategic areas of the river catchments.

Flood is the main hazard that Kyaikmaraw is facing almost every year since one of the major river of Mon State “Attaran” is flowing from south to north across the town. The flooding in Kyaikmaraw Township is common during raining season May to September due to the high river water flow caused by the continuous rainfall. Although the flooding in the past is not much life threatening in Kyaikmaraw Township, there were mass evacuations of the communities to the higher ground, loss of property, livelihood assets and infrastructure damage. Flooding occurs because of the Attaran River has many zigzags and when the precipitation is incessant, the river could not flow into the sea, instead reverse back to the town. The floods in Kyaikmaraw Township usually occur at the low lying areas of the town and villages along the river banks and likely to experience every year. The flooding by the Attaran River extends for two weeks to one month, but no serious damage is experienced as communities are adapted to the situation, they just have to evacuate their residents during this period.

A combination of heavy precipitation and high tide which comes up from Andaman Sea through Jaing and Attran rivers make flooding unavoidable in Kyaikmaraw Township since collision of upstream water flow and high tide makes water level rise and floods the neighboring communities. Because Kyaikmaraw Township is at only 18 feet above sea level and the town looks like an oval shape frying pan, it serves the flooding as water basin and the water could not recede to the river.

Flooding usually affected to the villages located alongside the Attran River such as (Bein Byaw, Mei KaYo, U Lay, Nga Byay Ma, Kawt Ngan, Chaung Hnit Khwa and Pein Hne Kone villages) and low lying wards in the town, particularly “Shin Saw Pu” and “Yan Myo Aung” Wards are the most affected area every year. Since the township itself comprises with the villages on the sides of river, at least one third of the township is usually affected by the flood. Normally, flood inundation period is 3 to 5 days but in some areas, it takes as long as one month for flood waters to recede. Figure 4 indicates the inundated areas of Kyaikmaraw Township.

Figure 4: Flood Inundated Area of Kyaikmaraw Township



Source: The Mimou

The town location and its shape are the main aspects of experiencing flood every year. Other factors of negative impacts of flood include; height of the house legs is quite low and built only with locally available materials. Though living at the low lying area and facing flood hazard during monsoon season, the hazards awareness and preparedness measures are very unlikely; such as “to build houses on the higher plinth” or “with long leg” or “to stockpile the essential basic food and non-food items prior to the monsoon season”. The most important part is the attitude of the people living in the area, if equip with the knowledge acquired and raised their awareness on disasters and impacts, their commitment and willingness to change or adapt the knowledge gained will increase their capacity and be able to protect themselves in their communities.

3.1.2 Fire Hazard Assessment

According to the Fire Department, the Fire hazard is the most frequent hazard in terms of frequency, which accounts for 71 percent of the disasters in Myanmar. The number of fire cases is decreasing while the losses due to fire is showing increasing trend. The high incidences of fire cases are concentrated mainly in Yangon, Mandalay, Ayeyarwady, Sagaing and Bago. These Divisions account for 63 percent of the total fire cases of the country, while the financial loss is approx. 38 percent. The main causes of fire are kitchen related fires and negligence which accounts for 83 percent of the fire

cases and period from January to May is the high season for fires. The average annual fire cases are about 900.¹¹

The period from January to May is the high season for fires and secondary period is during dry winter season from mid-October to mid-February as per the Fire Services Department. The average annual fire cases are 900, which leads to loss of properties to the tune of 1 billion kyats or 0.91 million USD. Based on the fire incidents from 1983-2007, the States and Divisions have been categorized into High, Medium and Low Fire Risk Zones.¹² Mon State including Kyaikmaraw Township is ranked as Medium Risk Zone. Following criteria has been used for zoning:

- **High Risk Zone:** More than 100 average annual fire cases
- **Medium Risk Zone:** Between 100 and 50 average annual fire cases
- **Low Risk Zone:** Less than 50 average annual fire cases

Figure 5: Area & Population in Fire Risk Zone

Fire Risk Zone	Divisions/ States	²⁵No. of Townships	Area <i>In sq. miles</i>	% total area	Population	% of total population
High	Yangon, Bago, Ayeyardwady Mandalay Sagaing	167	83,538	32	33,431,000	60
Medium	Magway Mon, Shan	89	82,208	31	13,361,000	24
Low	Rakhine Kachin, Kayah Kayin, Chin Tanintharyi	68	96,812	37	8,604,000	16
Total		324	261,228	100	55,396,000	100

Source: Hazard Profile of Myanmar

Majority of the housing in Kyaikmaraw Township are constructed by bamboo and wood as bamboo and wood are very common and cheaper raw material for housing

¹¹Guideline on Township Disaster Management Plan

¹²Hazard Profile of Myanmar, July 2009

infrastructures, people in rural prefer to live in bamboo houses with thatched roof made of bamboo shaves and Nipa palm leaves (*Dha-Ni*), which are highly inflammable. As these materials are locally and readily available, do not require sophisticated technology, and are not expensive, and above all suit the local weather condition, hence much preferred.

The high incidences of fire in Kyaikmaraw Township are due to the high temperature, use of flammable construction materials, clustered settlement, stock piles of diesel & petrol and unplanned development. The uncovered cinders left after cooking with wood and charcoal, candles left lit even after use, exposure of naked flames and unattended mosquito coils to diesel, petrol and engine oils also led to fire cases.

3.2 Vulnerability Assessment

Vulnerability is a concept which describes factors or constraints of an economic, social, physical or geographic nature, which reduce or enhance the ability of a community to prepare for and cope with the impact of hazards.¹³ The nature of vulnerability depends on the nature (scale, intensity and duration) of the hazard to which elements to be exposed.

These elements include people, household and settlement structures, community facilities and services, livelihood activities and assets, and the physical environment. Some properties of a particular element make it more vulnerable to certain types of hazard than to other hazards. For example, buildings constructed with local materials will be more vulnerable to the hazard like storm, flood and fire than to drought. Similarly a person engaged in agricultural sector would be more vulnerable to a hazard like flood than that of a person employed in community services or business sector. Therefore, it is important to understand the vulnerability of different sectors of a particular location to take appropriate disaster management measures (mitigation, preparedness, response and recovery) and actions.

Giving the flood being the main hazard and fire being minor hazard and potential causes and damages that may be incurred at Kyaikmaraw Township, the vulnerability assessment was conducted to identify the people and infrastructure most vulnerable to flood and fire disasters. Although there can be multiple factors impacting on vulnerability in Kyaikmaraw Township, following elements of vulnerability (Population Vulnerability, Livelihood Vulnerability and Infrastructure Vulnerability) have been identified.

¹³Multi Hazard Risk Assessment in Rakhine State, United Nations Development Programme, Nov 2011

3.2.1 Population Vulnerability

Population vulnerability is one of the prime criteria in assessing overall vulnerability of the Kyaikmaraw Township. There are several dimensions of populations such as age group balance, gender balance, education and level of awareness, location of village, all of which have an impact on the level to vulnerability to natural disaster.

Age and gender balance: It is evident from analysis of past different floods that women and children are more vulnerable than men. And vulnerability of elderly people in the village is high as well; it means that a greater proportion of the total population is threatened by a natural disaster. This is so because women, children and elderly people generally have a lack of physical strength and are unlikely to recover from disaster if their houses and assets are damaged. Especially in areas of high cross boundary migration (mostly to Thailand); many villages have large proportion of children and elderly populations, where there the DRR programming should prioritized at these locations; having a list of such villages locations would enable Kyaikmaraw Township authorities to target such villages with community disaster preparedness. At the same time, it is essential that DRR programming by the government and supporting agencies focuses on building the resilience of female, children and older members of local communities.

Education and Awareness: Generally, level of education within communities is crucial in taking decisions to ensure their resilience to disasters. Better educated communities are less vulnerable to disasters, as they may be better able to appreciate the risk of disaster, receive and retain DRR information disseminated through local awareness raising campaigns, and take precautionary measures to protect themselves against hazards. Reducing risk and vulnerability to disasters requires people understanding how they can best protect themselves, their property and their livelihoods, and these can be achieved through awareness raising initiatives such as trainings, educative talk shows, print media and other means. However, there are not much DRR activities conducted in Kyaikmaraw Township. GAD have been organizing some mock drill exercises in some villages as part of their departmental activities, yet doesn't covered many villages.¹⁴ Fire Department had also conducted some Awareness Raising activities with the help of "Village Auxiliary Fire Brigades" during dry season. Apart from them, there are other organizations working in the area for DRR activities or capacity building of community.

¹⁴ Number of villages need to reconfirm with GAD

Location of Villages: Kyaikmaraw Township is made up of 2 urban wards and 44 rural village tracts (166 villages). Since the township has many creeks and rivers, most of the villages are situated at the banks of the rivers and creeks which are especially exposed to flood hazard. Out of those villages, BeinByaw, Mei KaYo, U Lay, Nga Byay Ma, Kawt Ngan, Chaung Hnit Khwa and Pein Hne Kone villages are most vulnerable villages of all. Also the only two wards “Shin Saw Pu” and “Yan Myo Aung” are at the low lying location trigger the vulnerability to flood hazard almost every year.

3.2.2 Livelihood Vulnerability

Livelihood occupation scenario is an important factor for assessing the vulnerability of the community. While analyzing livelihood vulnerability for Kyaikmaraw Township, it is evident that vulnerability to flood hazard is more than that of the other hazards such as fire, storm, and landslide etc. This is because a substantial number of people are engaged in the agriculture/horticulture and livestock breeding (actually animal husbandry) by occupation. The portion of livestock is at 28% and agriculture/horticulture is at 27%. The industrial workers and people working in government sector are a lot less with 1% and 3% respectively.¹⁵ In reality, the main source of incomes in the township generally is from the people who migrated¹⁶ and working in Thailand.

The majority of the workers in agriculture/horticulture and service industry are migrated from other parts of the country. Agriculture/horticulture is more affected by the flooding as it destroyed the soil and crops. Since, most of the people working in this sector are migrant workers, who have unstable employment, either skilled or unskilled; their incomes are based on the daily wages. Unstable occupation makes them vulnerable to natural disaster, due to poor living conditions, poor education/awareness, and inability to recover quickly using their own resources as they only have very little or no resources.

It is identified from overall analysis of livelihood vulnerability of people working in agriculture/horticulture and livestock breeding are much higher than that of those working in different sectors, their losses on agriculture land, seeds and animals in flooding are quite likely.

3.2.3 Infrastructure Vulnerability

Housing is the main infrastructure to be considered for vulnerability assessment since this is very important to understand the risk to take initiatives for reducing human casualty to any hazard. Vulnerability has been considered for all the building types

¹⁵ Kyaikmaraw General Administration Department

¹⁶ According to GAD, majority of the youth from the villages are working as migrant workers in Thailand and transfer the money to their homes

available in the township. Kyaikmaraw Township as in other areas of Myanmar is dominated by wooden and bamboo structure of housing with only very few percentage of brick-noggin types of structures across the township. The presence of high number of weak structures like huts and wooden houses with low legs make it highly vulnerable to the hazards flood, fire, and strong winds.

The road accessibility is also important since linkages (such as road and river) can enable timely and safe evacuation of populations at risk during or before the hazard incidences. It will also provide easier access for external assistants to carry out emergency response and relief operations for the disaster affected communities. The main connectivity between and among villages of Kyaikmaraw Township is through roads and bridges. However majority of the roads are earthen roads and accessible only during dry season, where many of the bridges connecting villages are small and by wooden and some with concrete are also not accessible during flooding. Waterways are another main mode of connectivity within Kyaikmaraw Township since the Attran Main River is flowing across the town, but better accessible only in rainy season.

3.3 Capacity Assessment

“Capacity Assessment is an analysis of desired capacities against existing capacities; this generates an understanding of capacity assets and needs, which informs the formulation of a capacity development response.”¹⁷ It is important to identify what key capacities already existed at the Township level. The purpose of capacity assessment is to determine the ability of local level government departments to execute disaster management plan and functions. It was also aimed to identify the needs (resources & tools) and the potential opportunities (gaps) for enhancing specific skills and knowledge that are essentially necessary in building the capacity of TDMC members in regards to Disaster Risk Management Issues.

How can Township government departments more effectively manage the resources that arrive following a major disaster, including central financial aid, private sector donation and nonprofit assistance? What is the best division of labor among the township government departments for a long-term disaster management effort? Is there a need to train employees of those departments before the disaster to be “ready reserve” of long-term disaster management effort? All of these questions posed are closely associated with the capacity and resources of the township government departments and power of pre-planning for disaster management. Such capacity, resources and planning will improve the outcomes at the local level and advancing the concepts of sustainable development and disaster resilience.

¹⁷ UNDP Practice Note: Capacity Assessment, September 2008

The capacity assessment completed at Kyaikmaraw Township, coupled with the *Vulnerability Assessment* presented above, serves as integral part of designing the TDMP. The assessment is an added value for the TDMC to enhance their capacities and resources. After carrying out the assessment on the capacity of preparedness, response and mitigation efforts especially and not limited to skills, expertise, knowledge & resources (materials and finance) on Disaster Risk Management. It still remains the least priority aspect among other development activities in the township.

3.3.1 Awareness on Policy Frameworks

The respective government departments, the members of Kyaikmaraw Township Disaster Management Committee ¹⁸ have limited knowledge on existing policy frameworks in Myanmar at National level (National Disaster Management Law, Standing Order, Myanmar Action Plan for Disaster Risk Reduction) and at State level (Mon State Fire & Natural Disaster Response Law). Unavailability of any DRM related documents at township or department levels triggered limited knowledge on policy frameworks related to disaster management. Relief and Resettlement Department (RRD), a focal department for disaster management in country level is also not present at Kyaikmaraw Township. Thus, the institutional arrangement for disaster management at township level is not properly organized and the divisions of labor among TDMC members are also unclear. Strong Institutional Arrangement dedicated to Disaster Management would be an enabling factor to mobilize the workforces of TDMC members and coordinate and cooperate for all the activities of disaster management at township level.

3.3.2 Preparedness Measures at Departmental Level

The perspective of TDMC committee members regarding preparedness measures at departmental level need be enhanced. It was identified that their understanding on preparedness measures is very basic. Only some persons from some departments, who gained the short course training on DRR, have mentioned some preparedness measures, which included;

- to develop a preparedness emergency response plan by organizing coordination meeting with other departments prior to the disaster
- to collect clean water in water storage vehicle and get ready to mobilize them

¹⁸ There are 12 departments composed of TDMC in Kyaikmaraw Township. They are General Administration Department, Township Police Force, Department of Fire Services, Planning Department, Health Department, Immigration Department, Development Affairs Department, Public Works, Forest Department, Agriculture Department, Tele-Communication Department and Department of Electric Power.

There are quite a number of challenges to tackle in Kyaikmaraw Township, the facts that only a very few staff from selected departments have received the DRR short course training. Reallocation of the staff to other area after 2 or 3 years also triggers the loss of resources.

The capacity-building initiatives such as; DRR training, exposure visits to other areas, peer supports between co-workers, information sharing sessions on DRR and related skills for the staff either internally within the department or with the other departments need dramatically. Such initiatives with full commitment by the head of departments and supports from higher level authorities are crucial.

3.3.3 Response Capacity at Departmental Level

In terms of response capacity of each key department is also very rudimentary, except Department of Fire Services owns vehicles to carry water for fighting the fire and extended manpower of "Auxiliary Fire Brigades" extensively across the township. Fire Brigade Personnel are well trained on emergency response and search & rescue; they have also taken some role of security in times of emergency situations. The initial interventions of the departments to respond to the emergency are very general, i.e. in the case of fire hazard, kill fire by buckets of water and sand.

The "how to" response to disaster within the respective departments identified as: participate in coordination meeting with other departments, cooperate for the evacuation of affected communities to temporary shelter, collecting damage & loss data, mobilize mobile clinic and carry out search & rescue; and yet to be effective and efficient. The engagement with the private sector also needs to enhance for stronger tie, such as owners of the river ferry services, road transport services, to effectively response to disaster.

3.3.4 Resource Capacity at Departmental Level

Appropriate resources of technical, financial and materials are the essential enabling factors for any organization to response to the situations of disaster and preparedness planning. As in any other townships in Myanmar, Kyaikmaraw Township is also having challenges with inadequate physical resources, DRR technical skills and financing for DRR interventions.

There are only very few number of people who have received disaster preparedness or response or DRR training in the departments. It was identified that only some departments gained DRR related training. Nevertheless, the training received are not

full-blown DRR training, but some short course organized by the State Authority or UNDP or CSOs, as a quota basic to participate in the training. Furthermore, none of the heads of the departments received any DRR training, including head of General Administration Department. The sharing from those who have received the DRR training within the department is also very unlikely¹⁹. Thus, the DRR awareness level within the department is very limited. Departments also have very limited manpower, sometimes only one person in entire department and availability for participation in disaster management is implausible.

In terms of physical resources such as infrastructure support facilities (temporary shelters, vehicles, boats with engine, communications materials etc.), and stock piling of relief items (food and non-food etc.) are also the requirements in Kyaikmaraw Township. There are only three water storage vehicles by Fire Services Department and one water storage vehicle by Development Affairs Department. Communications system during emergency is solely on mobile phone within the department and to other counterparts. Though culturally and traditionally, the schools, monasteries and churches are used as temporarily shelters during emergency, proper shelter management (establishing of waste management system, garbage disposal system and sanitation system) still needs to be enhanced and enforced to reach to acceptable standards²⁰ in disaster management aspect. There are no separate funds allocated for disaster management activities at township level. DRR budget and DRR technical skills are also very limited.

The heads of departments including the GAD Administrator haven't received any proper Disaster Management training of neither Policy Frameworks nor Disaster Risk Reduction. Their understanding on DM or DRR essentially is based on the experience of emergency response carrying out the relief and resettlement operations. As a result, the preparedness measures at department level and broader aspect of Township level need to be scaled up.

Strong Institutional arrangements dedicated to Disaster Management would be an enabling factor to mobilize the Township Government Workforces. The assessment shows that there are needs to work out on activities or action plans which strengthen the DRR capacities of various level administrative set-ups (township, ward, village tract and village levels), such as regular review and updating of TDMP, development of Village Tract DMPs, imparting of capacity building of disaster management to township level government departments and village tracts' administrators on DRR specific themes (mock drills, search and rescue etc.).

¹⁹Due to the workloads when they resume back their duties and the habitual nature of government employees not practicing sharing after learning. This kind of practices should be enhanced in all the government departments at different levels, which probably needs a lot of advocacy and lobbying works to change the mind-sets of people.

²⁰ Should be in line with SPHERE Minimum Standards

Each of the key government departments need to have sufficient resources financially, technically and adequate manpower with clear indications of roles and responsibilities. One of the cost effective ways to strengthen institutional arrangements for disaster management is enforcing inclusive disaster management process which calls involvement of all township level departments at every activities of disaster management. Such endeavors, including budget allocation and capacity building at township level need seriously consideration by the regional authority and national government.

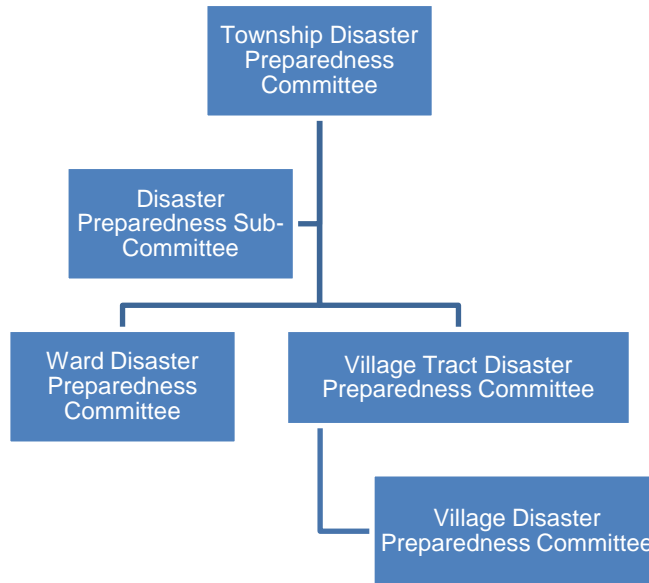
Chapter 4:

Institutional Arrangements for Disaster Management at Township

The institutional arrangements for disaster management are a legal framework for disaster risk reduction. There is already an institutional system in Myanmar for disaster management at all administrative levels from national to the local. It is important to have formal structures and arrangements at different levels with proactive and organized institutional framework, involving all the stakeholders at various levels. By having it, the state/region government can respond to disaster effectively and efficiently through using of formed local bodies with appropriate individual. The main duties are to lay down

policies, issue guidelines, develop and implement plans etc. It is also important to have formal structures and arrangements at township level and its linkages to larger institutional framework (District, State/Division and National levels institutional mechanism. Figure 6 shows an overview of institutional arrangement for disaster management in Kyaikmaraw Township.

Figure 6: Overview of Disaster Management System in Kyaikmaraw Township



Though there already is Institutional Arrangement for Disaster Management in Kyaikmaraw Township, there is still a need to strengthen the Institutional Arrangement to be established systematically, and improve horizontal integration among committee members (departments) as well as vertical cooperation from township level to above (district/state) level and below (village) level.

4.1 Township Disaster Management Committee

Kyaikmaraw Township Disaster Management Committee is formed with 18 committee members in order to execute disaster related activities before, during and after the disasters. Township Administrator is the chairperson of the committee and the secretary is Township Staff Officer of Planning Department Township with Commander of Police Force as vice chairperson. The committee chair will provide quarterly report to District/State Disaster Management Committee. The formed committee members will meet once a month for coordination and updating of implementation of planned activities related to DRR. The members of the committee are stated in figure 7.

Figure 7: Township Disaster Management Committee Members

Kyaikmaraw Township Disaster Management Plan

Sr.	Committee Member	Department	Role
1	Township Administrator	General Administration Department	Chairman
2	Commander	Township Police Force	Vice Chairman
3	Deputy Township Administrator	General Administration Department	Member
4	Township In Charge	Department of Fire Services	Member
5	Township Staff Officer	Immigration Department	Member
6	Township Engineer	Public Works	Member
7	Township Staff Officer	Forest Department	Member
8	Township Staff Officer	Agriculture Department	Member
9	Township Health Officer	Health Department	Member
10	Township Education Officer	Basic Education Department	Member
11	Executive Officer	Development Affairs Department	Member
12	Township In Charge	Tele-Communication Department	Member
13	Township Engineer	Department of Electric Power	Member
14	Township Staff Officer	Planning Department	Secretary
15	Deputy Staff Officer	General Administration Department	Attached Secretary
16	Representative	Myanmar Women's Affair Association	Member
17	Representative	Myanmar Red Cross Society	Member
18	Representative	Auxiliary Fire Brigade	Member

Some of Civil Society Organizations existing and operating in Kyaikmaraw Township are also included as members of the TDMC. The Institutional Arrangements for Disaster Management at Kyaikmaraw Township is needed to disseminate widely to all the TDMC members on composition of the committee, organogram and responsibilities. Only then all the members will be aware that they are part of the TDMC and recognize that they all play a crucial role in safe guarding the Kyaikmaraw Township.

4.2 Sub-Committees

TDMC is the main body for disaster risk management and there are ten sub-committees constituted for effective execution of disaster risk management activities including DRR

and DM activities based on the needs according to the local context and situation in Kyaikmaraw Township. The ten sub-committees are listed below.

Figure 7: Township Disaster Preparedness Sub-Committees

Sr.	Name of the Sub-Committee
1	Information
2	International Relation
3	Search and Rescue
4	Collecting of Preliminary Damages News and Emergency Aids
5	Confirmation of Damage and Losses
6	Transport and Route Clearance
7	Disaster Risk Reduction and Building of Emergency Tents
8	Health Care
9	Rehabilitation and Reconstruction
10	Security Disaster Reduction and Emergency Tents

The Township Administrator designated as the chair of the TDMC is the key responsible person in strengthening the Kyaikmaraw Township Institutional Arrangement and empowers its sub-committees for Disaster Management activities. The commitment of the township administrator will determine the far reaching impacts of this township disaster management plan, by maintaining the proper vertical relationship with higher authorities and ensuring the effective horizontal communication among TDMC & sub-committees. The role of chairperson also includes overseeing the coordination and operations of disaster management activities in partnership with both national and international agencies including Non-Government Organizations both during emergency and normal times. The institutional arrangements and compositions of the each sub-committee can be seen below.

(1) Information Sub-Committee

Sr.	Sub-Committee Member	Department	Role
1	Township In Charge	Information & Public Relation Department	Chairman
2	Education Officer	Basic Education Department	Member
3	Staff Officer	Health Department	Member
4	Engineer	Public Works	Member
5	Chairman	Township Video Team	Member
6	Unit Chief	Township Police News Unit	Secretary

(2) International Relation Sub-Committee

Sr.	Sub-Committee Member	Department	Role
1	Deputy Township Administrator	General Administration Department	Chairman
2	Deputy Commander	Township Police Force	Member
3	Ward/Village Administrators	General Administration Department	Member
4	Chairman	Township Transports Association	Member
5	In Charge	Tele-Communication Department	Member
6	Representative	Myanmar Women's Affair Association	Secretary

(3) Search and Rescue Sub-Committee

Sr.	Sub-Committee Member	Department	Role
1	Staff Officer	Fire Department	Chairman
2	Township Health Officer	Health Department	Member
3	Representative	Red Cross Association	Member
4	Representative	Auxiliary Fire Brigade	Member
5	In Charge	Department of Traditional Medicine	Member
6	Station Commander	Township Police Force	Secretary

(4) Collecting of Preliminary Damages News and Emergency Aids Sub-Committee

Sr.	Sub-Committee Member	Department	Role
1	Deputy Township Administrator	General Administration Department	Chairman
2	Engineer	Department of Electric Power	Member
3	Staff Officer	Forest Department	Member
4	Ward/Village Administrators	General Administration Department	Member
5	Executive Officer	Development Affairs Department	Member
6	Staff	Information & Public Relation	Secretary

(5) Confirmation of Damage and Loss Sub-Committee

Sr.	Sub-Committee Member	Department	Role
1	Township Staff Officer	Planning Department	Chairman
2	Manager	Myanmar Economic Bank	Member
3	Staff Officer	Land Records Department	Member
4	Deputy Township In Charge	Immigration Department	Member
5	Staff Officer	Public Works	Member
6	Township In Charge	Internal Revenue Department	Secretary

(6) Transport and Route Clearance Sub-Committee

Sr.	Sub-Committee Member	Department	Role
1	Executive Officer	Development Affairs Department	Chairman
2	Deputy Commander	Township Police Force	Member
3	Deputy Staff Officer	Fire Department	Member
4	Township In Charge	Tele-Communication Department	Member
5	Representative	Township Boat Owners	Member
6	Chairman	Township Transports Association	Secretary

(7) Disaster Risk Reduction and Building of Emergency Tents Sub-Committee

Sr.	Sub-Committee Member	Department	Role
1	Staff Officer	Forest Department	Chairman
2	Engineer	Public Works	Member
3	Staff Officer	Irrigation Department	Member
4	Staff Officer	Agriculture Department	Member
5	Deputy Manager	Myanmar Sustainable Plants Department	Member
6	Engineer	Development Affairs Department	Secretary

(8) Health Care Sub-Committee

Sr.	Sub-Committee Member	Department	Role
1	Township Health Officer	Health Department	Chairman
2	Township Red Cross Officer	Red Cross Association	Member
3	In Charge	Department of Traditional Medicine	Member
4	Medical Doctors	Township Private Clinics	Member
5	Representative	Myanmar Maternal and Child Welfare Association	Member
6	Deputy Health Officer	Health Department	Secretary

(9) Rehabilitation and Reconstruction Sub-Committee

Sr.	Sub-Committee Member	Department	Role
1	Township Engineer	Public Works	Chairman
2	Township Education Officer	Basic Education Department	Member
3	Staff Officer	Land Records Department	Member
4	Staff Officer	Health Department	Member
5	In Charge	Tele-Communication Department	Member
6	Staff Officer	Irrigation Department	Secretary

7	Assistant Engineer	Development Affairs Department	Secretary
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(10) Security Sub-Committee

Sr.	Sub-Committee Member	Department	Role
1	Commander	Township Police Force	Chairman
2	Unit Chief	Township Police News Unit	Member
3	Station Commander	Township Police Force	Member
4	Representative	Auxiliary Fire Brigade	Member
5	Respective Ward/Village Administrators	General Administration Department	Member
6	Ward/Village Administrators	General Administration Department	Secretary

Each of the Sub-Committee is constituted with different government departments and some CSOs in the Kyaikmaraw Township, based on their expertise, departmental functions and manpower. There may be some overlapping duties by some departments because of the needs and natures of the sub-committee; however, it was already agreed among the respective departments that to assigned second in command to the designated role to work efficiently.

Chapter 5:

Roles and responsibilities of Committee and Sub-Committees

The existing roles and responsibilities of Kyaikmaraw TDMC and sub-committees were reviewed and revised to clearly mention the tasks to be taken during various phases of

disaster management, before, during and after disaster. The roles and responsibilities have been defined separately and entrusted to constitute Sub-Committees.

The numbers of Sub-Committees were selected based on the tasks and relevant expertise of each Government Department. It can also extend the membership of committee and include some additional members as per the need. The roles and responsibilities of each sub-committee should be disseminated to all the members and highlighted DRR into departmental development activities to be emphasized for long-term risk reduction.

5.1 Roles and Responsibilities of Township Disaster Management Committee

The existing Roles and Responsibilities of TDMC in all phases of disaster management were reviewed and revised accordingly, including the tasks, preparedness and mitigation measures to be performed **before disaster**, tasks and responses to be performed **during disaster** and relief, reconstruction, rehabilitation, recovery activities, to be performed **after disaster** as follows;

Before Disaster

- Review and revise the TDMP annually;
- To convene regularly the meetings of Township Disaster Preparedness Committee and its sub-committees and undertake continuous watches on the disaster risk reduction and preparedness measures;
- Maintain the vertical relationship with the District and State Authorities;
- Ensure effective inter-departmental coordination among government departments at township;
- Oversee and supervise the before disaster activities of all sub-committees;
- Ensure the formulation of disaster preparedness plans in wards and villages, and inspection on their executions;
- Ensure mainstreaming of DRR into township level departmental development works;
- Initiate DRR capacity building programs in close collaboration with Relief and Resettle Department, Mon State Government and other stakeholders;
- Formulate activities to educate and mobilize people for their full participation in raising their awareness on natural disasters and Dos & Don'ts;
- Develop SOP for emergency management
- Organize mock drills in which Township Disaster Management Committee, its sub-committee and communities are involved in to check effectiveness and practicability of the plan;

- Provide instructions and guidelines to develop the Early Warning System, so that emergency warning news is quickly disseminated to the grassroots levels;
- Determine the activities to mitigate disaster risks such as raising the level of roads, renovate and reconstruct the buildings from low lying flood prone areas, and putting long leg to the houses/buildings;
- Identify safe places in advance for refuge in times of disaster and designated place suitable for opening of temporary Relief Center;
- Prepare and plan the necessary equipment and tools for emergency response prior to the flood season;
- Prepare plan for likely outbreak of epidemic diseases after flood;

During Disaster

- Disseminate the early warning information clearly and precisely to sub-committees and communities;
- Evacuate the communities at vulnerable places to safe shelter immediately after the emergency warning is received;
- Supervise and coordinate during disaster activities of all sub-committees;
- Ensure the effective implementations of activities by all sub-committees in close supervision at different levels (Township, Ward//Village Tract, and Village);
- Establish Relief Fund (or) Disaster Emergency Fund;
- Keep the state government informed about disaster situation and progress;
- Coordinate the activities of the lateral agencies like military and other stakeholders (CSOs, NGOs Well Wishers etc.);

After Disaster

- Collect and compile data on death toll, damage and loss, affected people and report to district/state disaster management committees;
- Report the disaster management activities to district disaster management committee and to make arrangement for implementation of directions from higher authorities;
- Provide supervision for prompt distribution of financial and basic needs (food, water, clothing and medicines) from the State and donors to the beneficiaries;
- Supervise and coordinate the after disaster activities of sub-committees including psycho social supports, rehabilitation and reconstruction;
- Record the experiences, lessons mentioning pros and cons deriving from disaster management activities;
- Reviewing disaster related activity reports received from sub-committees and provide appropriate directions;

- Monitor and document the response and update Township Disaster Management Plans based on learning of the past disaster;

5.2 Roles and Responsibilities of Sub-Committees

The existing Roles and Responsibilities of Sub-Committees were reviewed and revised accordingly for all phases of disaster management, including the tasks, preparedness and mitigation measures to be performed **before disaster**, tasks and responses to be performed **during disaster** and relief, reconstruction, rehabilitation, recovery activities, to be performed **after disaster** as follows;

5.2.1 Information Sub-Committee

Before Disaster

- Setup a network to collect and disseminate weather prediction and forecasting news and instructions from Meteorology and Hydrology;
- Develop clear and concise communication channel and the contact numbers of key responsible persons;
- Install warning flags such as green, yellow and red in designated areas of each ward/village and water level measurement posts to indicate danger level of flood water;
- Design public awareness program and raise awareness among people for mitigation of flood hazard and prevention of fire hazard;
- Setup Early Warning System and prepare equipment to disseminate warning information;
- Compiling contact details list of names, telephone numbers, mobile phone numbers, fax numbers of organizations, private donors, business people, of whom potential to get assistants;

During Disaster

- Verify the received warning information and disseminate warning information to the vulnerable areas;
- Monitor warning information constantly;
- Ensure receiving of the disseminated information to the grassroots levels in a timely manner;
- Disseminate and distribute the received information to other sub-committees;

- Coordinate with other sub-committees;

After Disaster

- Monitor and update the situation of the collective information from sub-committees with the concerned authorities;
- Release the Relief Operations news;
- Screening and releasing information for press release, and making documentary photographs and videos;
- Coordinate with "collecting of preliminary damages news and emergency aids sub-committee", and "confirmation of damage and loss sub-committee";
- Conduct evaluations for effective information and educational activities for future;

5.2.2 International Relation Sub-Committee

Before Disaster

- Make connection with the Institutions and International organizations to get technical and financial supports;
- Create a database of the organizations and their resources;
- Maintain the relationship with the connections;
- Inform and share the database to other sub-committees and TDMC;

During Disaster

- Contact the connections to get assistants for emergency response;
- Coordinate with other sub-committees for the current information;
- Provide information to the connections as and when required to get their supports and assistants;
- Inform and share the feedback of the connections to other sub-committees and TDMC;

After Disaster

- Monitor and update the situation of the collective information from sub-committees;
- Conduct the review session with other sub-committees;
- Consolidate the information and prepare the report;
- Send report to concerned donor organizations;

5.2.3 Search and Rescue Sub-Committee

Before Disaster

- Develop Flood/Fire Risk Map of the township highlighting safe places (pre-designated shelter for safe evacuation, evacuation route, higher ground etc.);
- Identified vulnerable population such as houses with old aged people, children, disability, and at the bank of river etc.;
- Form Search & Rescue Task Force Teams (SAR Team) including local representatives, fire brigade members, youth, Red Cross Volunteers, representatives from government departments;
- Train the SAR team with SAR and First Aid techniques in coordination and cooperation with Fire Department, Red Cross and the military;
- Establish a network with regional, national and international SAR team to ask for assistants;
- Prepare a list of tools, transport vehicles, vessels, machinery and equipment for evacuation and search & rescue operations;
- Check a list of tools for evacuation and search & rescue operations periodically for maintenance purpose;
- Introduce Flood Risk Map to the task force team and conduct simulation exercise with multi-stakeholder participation;
- Coordinate with ward/village fire patrol teams for effective deployment of the SAR team;
- Assess and check inventory of the stocked resources every three months;
- Establish a reporting line for SAR operations to State Disaster Management Committee;

During Disaster

- Deploy the task force teams with necessary equipment and tools for SAR operations in cooperation with Military SAR
- Evacuate the prioritized population such as old aged people, children, pregnant women and disabilities;
- Ask for State level SAR if local SAR team's capacity couldn't manage to the disaster situation;
- Inform concerned departments to prevent secondary risks (i.e. Electric) and carry out rapid search and rescue;
- Transfer rescued victims to Health Care Sub-Committee for medical assistant;
- Coordinate with and report to TDMC regarding with the operation;

After Disaster

- Get the lists of missing and death people as fast as possible and immediately start the search and rescue operations;

- Clear the damages and death bodies (animals and people if any);
- Coordinate with other sub-committees for further assistants;
- Report to TDMC and Information Sub-Committee that Search and Rescue operations are over;

5.2.4 Collecting of Preliminary Damages News and Emergency Aids Sub-Committee

Before Disaster

- Assess inventory of warehouses and the existing stockpile of the township;
- Stock relief items according to natural disaster Scenario 1 (Standing Order 19.a) for effective response (if possible);
- Create a cluster including different aids organization for emergency response;
- Make list of available resources from cluster/different organizations;
- Organize Rapid Assessment Team (RAT) including local volunteers and sub-committee members;
- Include Standard Operation Procedure for aids distribution in overall SOP for emergency management and set beneficiaries selection criteria to provide aids;
- Coordinate with TDMC for proper guidance and SOP for relief operation

During Disaster

- Activate cluster for emergency response;
- Report to and coordinate with TDMC for real time to obtain guidance;
- Setup relief camps/ temporary shelters;
- Monitor general condition of affected area;
- Deploy RAT and conduct preliminary Damage and Need Assessment (DANA);
- Develop disaster situational report and submit to TDMC;
- Allot affected population in the camps/shelters;

After Disaster

- Submit detail reports including Damages And Needs Assessment and situational report to authorities and TDMC;
- Make arrangement for prompt distribution of relief aids and fund donated by different donors;
- Distribute relief items from RRD and other donors to affected population according to SOP;
- Supervise for systematic distribution of the aids obtained;
- Record the distributed items and report back to TDMC and donors;

- Conduct coordination meeting with different organizations in order to avoid overlapping and conduct effective distribution of relief operation and emergency response;

5.2.5 Confirmation of Damage and Loss Sub-Committee

Before Disaster

- Compile complementary demographic, infrastructure and socio-economic data (i.e. housing structure, population, livestock, assets of each ward, village) of the township.
- Develop Damage and Need Assessment format (DANA) and train people to conduct DANA;
- Create communication channel for reporting and confirmation of Damage and Loss results;

During Disaster

- Provide necessary assistances to Rapid Assessment Team;
- Coordinate and communicate with Rapid Assessment Team and collect Damage and Loss results;
- Monitor weather condition and general environment condition of affected area;
- Prepare the necessary arrangements to deploy DANA Team;

After Disaster

- Deploy DANA Team and conduct the assessment;
- Identify damages to people's homes;
- Verify death tolls in coordination with authority concern;
- Collect data on damage & loss related to basic infrastructure;
- Keep record on damages and losses such as farms flooded by salt water, fishery industry and related facilities;
- Estimate damages and losses in affected areas based on photographs, videos and data of field work;
- Prepare report on recorded damages and losses after consolidation of assessment result from different sub-committees;
- Coordinate with Emergency Aids Sub-Committee;
- Report to TDMC;

5.2.6 Transport and Route Clearance Sub-Committee

Before Disaster

- Coordinate with Confirmation of Damage and Loss Sub-committee to request complementary data of the township and SAR Sub-committee to request risk map of the township;
- Assess nearest and available route of transportation in case of emergency and overlay it with Risk Map of the township;
- Identify a list of access roads and auxiliary approach routes, including condition of the roads and bridges and the availability of vehicles and list possible water channels as well;
- Plan alternative routes if roads and bridges are damaged or under renovation/repair;
- Record on the condition of roads;
- Store and make arrangement for fuel;
- Get the list of places to provide relief services and;
- Ensure availability of machinery, vehicles/trucks for water, fuel and ambulance;
- Set network to contact with state/region and national level for air-route in case of large scale disaster;

During Disaster

- Monitor weather condition and general environment condition of affected area;
- Prepare for deployment of special team to clear the transportation routes;
- Provide transportation services in coordination with SAR sub-committee;
- Make administrative arrangement in advance for transportation and route clearance;
- Coordinate with other sub-committees to get necessary supports;
- Timely report to TDMC about transportation condition of the affected area;

After Disaster

- Establish “Stop and Report Stations” along the roads and keep communication system;
- Ensure that disaster affected people are sent to relief shelter;
- Coordinate with other sub-committees to receive accurate data and information;
- Provide transportation services for the people who return to their homes;
- Resume normal transportation services;
- Report to TDMC regarding with transportation conditions across the township;

5.2.7 Disaster Risk Reduction and Building of Emergency Tents Sub-Committee

Before Disaster

- Conduct Vulnerability and Capacity Assessment of the township;
- Develop Township Disaster Management Plan in coordination with TDMC;
- Disseminate plan to other sub-committees and to the public;
- Implement the plan accordingly;
- Conduct awareness raising training related to common hazard in township to public in coordination with other sub-committees;
- Establish shelter management team along with their roles and responsibilities;
- Identify emergency shelters such as schools, religious places etc. and assess shelter capacity to number of affected people including children;
- Assess general condition of pre-identified shelters such as latrine, floor, showering places etc.;

During Disaster

- Monitor and update the situation of the collective information from other sub-committees;
- Open pre-identified shelters for disaster affected people under guidance/approval of TDMC;
- Provide services such as communication, medical, general cleanliness and restoring family services;
- Coordinate with Collecting of Preliminary Damages News and Emergency Aid sub-committee for distribution of Food and Non-Food Items to unassisted population;
- Coordinate with information sub-committee to keep abreast information of the disaster situation;
- Report timely to TDMC on the activities carrying out;

After Disaster

- Coordinate with information sub-committee;
- Provide services for the people who return to their homes;
- Resume normal function of relief shelters;
- Debrief on the operation activities;
- Update the Township Disaster Management Plan;

5.2.8 Health Care Sub-Committee

Before Disaster

- Develop Emergency Health Care Plan including SOP and medical guidelines for providing health care to affected people;

- Setup Health Cluster including different stakeholders who are involving in health related activities in the township;
- Prepare materials for construction of temporary clinic;
- Provide health education, dissemination of information on health care, hygiene, clean water;
- Stockpiling necessary medicines and making arrangements for storage and distribution in accordance with the medical guideline and SOP;
- Prepare for emergency sanitary water supply and latrine (mobile or temporary);
- Conduct necessary training for emergency health care such as first aid training to search and rescue teams and community volunteer groups;
- Coordinate with TDMC for proper guidance and SOP for providing health care to affected people;

During Disaster

- Arrange for transportation (vehicle and routes) to patients in coordination with transportation & route clearance sub-committee;
- Prepare and activate Health Cluster;
- Deploy trained health care team in coordination with Confirmation of Damage and Loss and Transport and Route Clearance Sub-Committees;
- Cooperate with SAR team for patient identification;
- Open temporary clinic and cooperate with Disaster Reduction and Emergency Shelter Provision Sub-Committee;
- Register patients and provide health care to patient in need;
- Report to the TDMC for real time to obtain guidance;
- Allocate patients in the camp/shelter after treatment or refer patient to hospital if needed;
- Provide water supply (domestic and drinking purpose) and set up temporary latrine following Sphere Minimum Standards based on the data of assessment team;
- Prevent communicable disease in cooperation with other health related aids organization and report to TDMC timely basis;

After Disaster

- Compile registered patients and make detail report to TDMC;
- Record the used medicines and equipment and report to TDMC and donor organizations;
- Setup surveillance team to watch communicable disease outbreaks for prevention purpose;

- Provide primary health care services and health education through mobile clinic services to affected people;
- Develop the report and submit to TDMC and donor organizations;

5.2.9 Rehabilitation and Reconstruction Sub-Committee

Before Disaster

- Assess existing settlement pattern and their housing conditions;
- Coordinate with Engineering Society or technical person to check the pre-identified shelters and critical infrastructures;
- Retrofit critical infrastructure according to recommendations from technical person;
- Set clear channel to coordinate and communicate with other sub-committees;
- Stockpile items for reconstruction such as tarpaulin, ropes, hummers ect.;

During Disaster

- Report to TDMC regarding the requirements in real-time to obtain guidance;
- Coordinate and cooperate with confirmation of damage and loss sub-committee;
- Assist other sub-committees as and when required;

After Disaster

- Request detailed reports from confirmation of damage and loss sub-committee;
- Identify damages for rehabilitation & reconstruction and prioritize critical infrastructure such as school, hospital etc.;
- Relocation of village where all houses are totally collapsed;
- Reconstruction of houses, schools, hospitals, clinics, roads and public buildings such as markets and offices;
- Making rehabilitation activities for the disabled and providing psychological support
- Rehabilitation of livelihood and animal husbandry activities;

5.2.10 Security Sub-Committee

Before Disaster

- Establish security team including police, authority concerned, fire brigade members and local people;
- Provide training to the team on security issues;

- Develop action plan on security issues;
- Exercise plan in order to provide timely deployment of security team;
- Make communication channel for reporting of any matter related to security issue at emergency shelters or camps;

During Disaster

- Deploy security team in coordination with TDMC and assign for 24 hour duty to team members;
- Provide security services to emergency and relief operation;
- Make security arrangements for affected areas in order to prevent crimes;
- Closely coordinate with Health Care Sub-Committee and Disaster Risk Reduction and Building of Emergency Tents Sub-Committee;
- Report to TDMC regarding with the operation;

After Disaster

- Exit when affected people left the shelters or camps;
- Help Shelter management team for sending affected people back to their places;
- Compile and submit final report to TDMC;