HCT MYANMAR – INTER-AGENCY EMERGENCY RESPONSE PREPAREDNESS (ERP) PLAN (JUNE 2019)
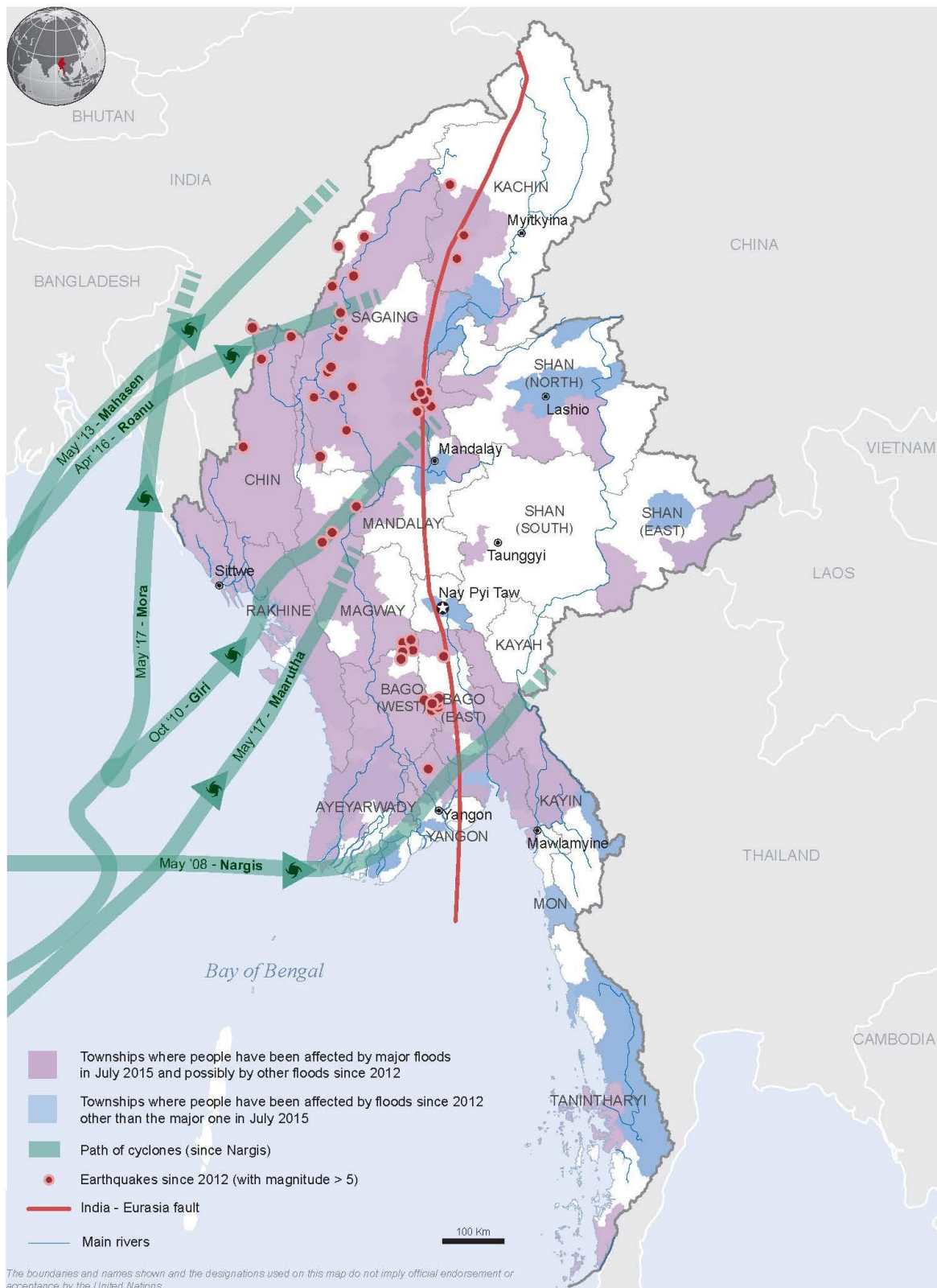
INTRODUCTION

Myanmar is prone to various natural hazards that include earthquakes, floods, cyclones, droughts, fires, tsunamis, some of which have the potential to impact large numbers of people. Historical data shows that there have been medium to large/scale natural disasters every few years. Myanmar is currently ranked 16th out of 191 countries globally and fourth highest in terms of exposure to natural hazards, after the Philippines, Japan and Bangladesh on the Index for Risk Management (INFORM)[1], which assesses the risk of humanitarian crisis and disasters that could overwhelm national capacity to respond, and 3rd on the Global Climate Risk Index of countries most affected by extreme events from 1998 to 2017[2].

Since 2002, more than 13 million people have been affected by disasters, including three Category 4 cyclones, several major earthquakes, and in 2015 the country experienced the worst flooding in decades.

In 2008, Cyclone Nargis devastated southern Myanmar, killing 140,000 people and causing extensive damage to infrastructure. There have been many lessons learned since then and efforts made to improve disaster risk reduction measures, early warning capacity and preparedness for response. Myanmar was hit by devastating floods and landslides in 2015 which affected more than nine million people in 12 of the country's 14 states/regions, killed 172 people and temporarily displaced 1.7million people. In 2018, Myanmar experienced heavy flooding in all 14 states and regions, temporary displacing nearly 270,000 people.

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[1] http://www.inform-index.org/
[2] https://germanwatch.org/en/14638

BHUTAN

INDIA

BANGLADESH

CHINA

KACHIN
Myitkyina

SAGAING

SHAN (NORTH)
Lashio

CHIN

Mandalay

MANDALAY

SHAN (SOUTH)
Taunggyi

SHAN (EAST)

VIETNAM

LAOS

Sittwe

RAKHINE   MAGWAY

Nay Pyi Taw

KAYAH

May '13 - Mahasen
Apr '16 - Roanu
May '17 - Mora
Oct '10 - Giri
May '17 - Maarutha

BAGO (WEST)   BAGO (EAST)

AYEYARWADY

KAYIN

Yangon
YANGON

Mawlamyine

MON

THAILAND

May '08 - Nargis

Bay of Bengal

CAMBODIA

TANINTHARYI

Townships where people have been affected by major floods in July 2015 and possibly by other floods since 2012

Townships where people have been affected by floods since 2012 other than the major one in July 2015

Path of cyclones (since Nargis)

● **Earthquakes since 2012 (with magnitude > 5)**

— **India - Eurasia fault**

— **Main rivers**

100 Km

The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

In the event that large numbers of people are affected (as was the case in 2008 following cyclone Nargis and the 2015 floods and landslides), the government may request international assistance to support their efforts in responding to the disaster.

The humanitarian community in Myanmar, represented by the Humanitarian Country Team (HCT), therefore developed and regularly updates the inter-agency Emergency Response Preparedness (ERP) Plan to support the Government of the Union of Myanmar in preparing for, and responding to, any of the hazards that may affect the country.

The ERP approach seeks to improve effectiveness by reducing both time and effort, enhancing predictability through establishing predefined roles, responsibilities and coordination mechanisms. The Emergency Response Preparedness Plan (ERPP) has four main components: i) Risk Assessment, ii) Minimum Preparedness Actions, iii) Standard Operating Procedures (SOPs), and iv) Contingency Plans for the initial emergency response. Besides these four elements, the preparedness package also includes the updated Multi-Sector Initial Rapid Assessment (MIRA) methodology, the Scenario Plan for a cyclone in Ayeyawady as well as key information related to cash transfer programming in new emergencies and guidance on gender mainstreaming on preparedness.

The overall goal of the ERP Plan is to mitigate the impact of disasters and save as many lives as possible from preventable causes. It aims to ensure that effective and timely assistance is provided to people in need through effective coordination and communication on emergency preparedness and humanitarian response between members of the HCT in Myanmar. The approach has been developed in collaboration with the Government, to facilitate coordinated and effective support to people affected by humanitarian crises.

RISK ASSESSMENT

Myanmar is ranked 16th out of 191 countries in the 2018 Index for Risk Management and fourth highest in terms of exposure to natural hazards, after the Philippines, Japan and Bangladesh. The country also ranks 3rd out of 187 countries in the Global Climate Risk Index. Fire is the most common hazard, followed by flooding. Floods occur in three waves: June, August and late September to October. The highest risk of flooding is in August, during the peak monsoon rains. The catchment areas of major rivers in the north and central zones, as well as the Southern Delta, are prone to riverine floods. The mountainous and hilly areas in Kayin, Kachin, Shan, Mon and Chin states are threatened by flash floods. Coastal regions are at risk of flooding due to extreme rainfall and storm surge.

INFORM — INDEX FOR RISK MANAGEMENT

COUNTRY	ISO3	RISK CLASS	Rank
Somalia	SOM	Very High	1
Central African Republic	CAF	Very High	2
South Sudan	SSD	Very High	3
Yemen	YEM	Very High	4
Afghanistan	AFG	Very High	5
Chad	TCD	Very High	6
Syria	SYR	Very High	6
Iraq	IRQ	Very High	8
Sudan	SDN	Very High	9
Congo DR	COD	Very High	10
Ethiopia	ETH	Very High	10
Nigeria	NGA	Very High	10
Haiti	HTI	Very High	13
Niger	NER	Very High	13
Mali	MLI	High	15
Myanmar	MMR	High	15

INFORM — INDEX FOR RISK MANAGEMENT

COUNTRY	ISO3	Natural	INFORM RISK	RISK CLASS	Rank
Philippines	PHL	8.5	5.5	High	29
Japan	JPN	8.4	1.9	Very Low	152
Bangladesh	BGD	8.2	6.0	High	21
Myanmar	MMR	8.1	6.4	High	15

The Myanmar coastline is susceptible to severe cyclones which form in the Bay of Bengal, which has two cyclone seasons: April to May and October to November. According to the Myanmar Hazard Profile, the frequency of cyclone landfalls in Myanmar was once in three years before the year 2000. More recently, cyclones cross the Myanmar coast every year. In 2008, cyclone Nargis had an extremely severe impact in the Ayeyawady Region, due to the extreme vulnerability of the area.

Myanmar frequently experiences earthquakes, as the Alphide-Himalayan earthquake belt passes through the country from north to south. Since 1900, there have been more than 10 earthquakes greater than 7.0 magnitude which have affected Myanmar. The most powerful of these was an 8.0 magnitude earthquake which struck in Sagaing State in 1946. In order to identify the disaster risks most relevant for Myanmar, a risk assessment was elaborated by the ERP working group ranking the hazards by their foreseen impact and likelihood of occurrence. Three categories of hazards were identified: natural, man-made and epidemics/pandemics. Natural hazards are based on those listed in Myanmar hazard profile[3].

Impact		1. Very Unlikely	2. Unlikely	3. Moderately Likely	4. Likely	5. Very likely
5. *Critical*			Tsunami	Earthquake	Cyclone	
4. *Severe*					Conflict & Civil Unrest	Floods
3. *Moderate*				Drought	Storm Surge,	
2. *Minor*			Pandemics	Landslides & Fire		
1. *Negligible*			Forest Fire			

Likelihood →

Likelihood:

1 = *Very unlikely* (a remote chance of an event occurring in the current year from 0-5%)
2 = *Unlikely* (5-15%)
3 = *Moderately likely* (15-30%)
4 = *Likely* (30-50%)
5 = *Very likely* (over 50%)

Impact:

1 = *Negligible* (minor humanitarian impact; gov. capacity sufficient to deal with the situation)
2 = *Minor* (minor humanitarian impact; current country level inter-agency resources sufficient to cover needs beyond gov. capacity)
3 = *Moderate* (moderate humanitarian impact; new resources up to 30% of current operation needed to cover needs beyond gov. capacity – regional support not required)
4 = *Severe* (substantive humanitarian impact; new resources up to 50% of current operations needed to cover needs beyond gov. capacity – regional support required)
5 = *Critical* (massive humanitarian impact; new resources over 80% of current operations needed to cover needs beyond government capacity – L3 scale emergency)

For several years, Rakhine State has been prioritized to develop a comprehensive Contingency and Response Plan (CRP), as an area with a higher level of probability for a cyclone, in addition to the existing protracted emergency, the high levels of vulnerability, low levels of preparedness in communities, and the limited local capacities and resources. Several recent cyclones have affected Rakhine State in recent years, including Cyclone Mora in 2017, Cyclone Komen in 2015 and Cyclone Mahasen in 2013.
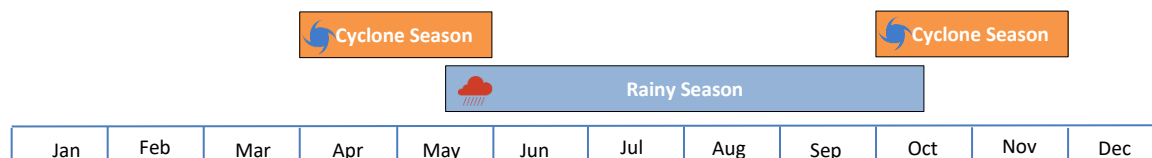
In addition to Rakhine being one of the most disaster-prone states in Myanmar, the State is marked by poverty and underdevelopment and historical ethno-political tensions between ethnic Rakhine communities and members of the Muslim population, most of them stateless Rohingya, that have displaced approximately 145,000 people from both groups in 2012. Six years after the initial violence, almost 130,000 people are still living in camps or camp-like settings in central Rakhine. Many of the camps are built in low-lying coastal areas with few disaster management or mitigation measures in place. The ongoing fighting since late 2018 between

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[3] Hazard Profile of Myanmar, (2009).

the Myanmar Army and the Arakan Army (AA) have displaced over 33,000 people across 104 sites, who are mainly sheltered in public buildings or privately-owned land, or staying in host families; large-scale sustainable returns ahead of the rainy season will be unlikely.

Additionally, a brief contingency plan for an earthquake in Mandalay and a scenario plan for a cyclone in Ayeyawady were developed.

WEATHER EVENTS TIMELINE

			Cyclone Season						Cyclone Season		
				Rainy Season							
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

MINIMUM PREPAREDNESS ACTIONS – MPA

Minimum Preparedness Actions (MPAs) establish a minimum level of emergency preparedness in country. MPAs are based on a multi-hazard approach and are not risk specific

| | C | Completed | O | Ongoing | N | Not started |

INTER AGENCY MINIMUM PREPAREDNESS ACTIONS						

#	Risk Monitoring	Status		Due date	Lead	Actions Taken
1	Revise annually the risk assessment and provide updates to the HC/HCT on new risks as they arrive	C		n/a	OCHA	Monitoring on-going
	Coordination & Management Arrangements	**Status**		**Due date**	**Lead**	**Actions Taken**
2	HCT **coordination structure for response** included in the ERP Plan	C		n/a	HCT	
3	Government **coordination structure for response** at State and Union levels included in the ERP Plan	C		n/a	OCHA	
4	Advocate for government clear procedures/protocols for requesting/accepting international assistance, including requirement such as **visas, travel authorization, custom clearances, tax exemption and store/warehousing**		O	On-going	OCHA	
5	Establish **protocols for civil-military cooperation/coordination** with the Government		O	On-going	RC/HC, OCHA	CM-Coord workshop held in June 2019
6	Contact details of Local government, Local NGO's, International NGO's and CSO's in disaster prone States/Regions (Rakhine, Ayeyawady, Mandalay, Sagaing. Magway and Bago)	C		n/a	WFP (Cash WG)	Data on cash preparedness 2019
7	Update annually **the inter-agency and sector Standing Operating Procedures (SOP) for disaster response**	C		n/a	OCHA & ICCG leads	
	Operational Capacity & Arrangements to deliver relief and protection	**Status**		**Due date**	**Lead**	**Actions Taken**
8	Update annually the **contingency plan for the scenario of cyclone response in Rakhine**	C		n/a	OCHA & ICCG leads	
9	Identify sector capacities in case of emergencies, including **contingency relief supplies, partners and human resources surge needs**, available surge mechanisms at regional or global level (stand-by partnerships, internal deployment, external recruitment, others) and mechanisms for their activation.	C		n/a	ICCG leads & OCHA	Sector/clusters know their mechanisms
10	Cash Preparedness Profile Data Collection	C		n/a	WFP (Cash WG)	Updated in 2019
11	Regularly update the Logistics Capacity Assessment (LCA)	C		n/a	WFP	Latest 2018 to be revised in August 2019
12	Ensure linkages with the **private sector for emergency response** through the MPD network and UMFCCI	C		n/a	UNDP & OCHA	
13	Conduct **regular simulation exercise to test ERPP**, including joint exercises with Government when feasible	C		n/a	OCHA	National level with government and HCT/ICCG in 2018
	Assessments	**Status**		**Due date**	**Lead**	**Actions Taken**
14	Ensure **MIRA assessment forms and SOP** are ready and critical staff trained in their use	C		n/a	OCHA & ICCG leads	Trained staff in Rakhine
15	Support the **Government in improving Damage and Loss collection, transmission and collation of data**		O	On-going	MIMU & OCHA	
	Information Management	**Status**		**Due date**	**Lead**	**Actions Taken**
16	Update and disseminate the **Common Operational Datasets (COD) and Fundamental Operational Datasets (FOD)**	C		n/a	MIMU	
17	Revise and agree to use the Data Countrywide Humanitarian Data Collection Standards		O	Sep 2019	MIMU & ICCG leads	
	Reporting	**Status**		**Due date**	**Lead**	**Actions Taken**
18	Ensure **report templates are available and shared** with reporting focal points	C		n/a	OCHA	
19	Ensure that **reporting focal points have been identified** in cluster/sector lead agencies	C		n/a	All	
	Public Information and Communication with Communities	**Status**		**Due date**	**Lead**	**Actions Taken**
20	Put in place a protocol on **how to handle media issues** at country level, and identify a spokesperson	C		n/a	HACG	
21	Maintain up to date **lists of national and international media** and media contacts in the country	C		n/a	HACG	
22	Develop agreed **guidelines for coordination of emergency communications with communities**		O	Aug 2019	OCHA	In draft
23	All HCT members staff are briefed and trained on Protection from Sexual Violence and Abuse (PSEA)		O	On-going	PSEA Network	To be revised by new PSEA network coordinator
24	Develop agreed sector **priority messages** for the affected community to reduce their risk	C		n/a	OCHA & ICCG leads	

HCT Myanmar – Inter-agency Arrangements

STANDARD OPERATING PROCEDURES - SOP
Inter-Agency (HCT and ICCG)

	ACTIVITY	WHO
E A R L Y W A R N I N G P H A S E	**Upon receipt of early warning information on an imminent threat**	
	Regular monitoring of weather forecast, mostly during the cyclone and monsoon seasons	OCHA
	Contact OCHA **to inform of the threat** and cross-check information at field level	All & OCHA
	Alert RC/HC	OCHA
	Contact GoUM (MoSWRR) to inform/verify threat	RC/HC & OCHA
	Alert **HCT and ICCG**	OCHA
	Send **Flash Update** (email) to HCT and ICCG	OCHA
	Inform **OCHA Regional Office and HQ**	OCHA & RC/HC
	Inform UNDAC of potential threat and **analyze possible need for UNDAC deployment**	OCHA
	Alert **HACG** to be on standby	OCHA
	Review **capacity to respond** (information on available stocks, personnel for assessments, staff deployable for a possible response, including capacity of donors/embassies, AHA Center)	ICCG
	Collect and share information on **MRCS** outreach/presence	OCHA
	Gather **secondary relevant data (**such as population in areas at threat and other information on vulnerabilities)	OCHA & MIMU
	Convene HCT meeting (define inter-agency response plans and additional cluster leads on standby)	OCHA
	Identify potential **mitigating measures** and agencies to implement them	HCT
	Confirm **reporting and information management focal points at cluster/sector level**	ICCG
	Identify constraints for **accessing potential affected populations**	HCT
	Advocate for **simplified visa, travel authorization** to affected areas and **customs** (as system in place 2015 floods response)	RC/HC
	Identify the need and requirements for an operational hub for ICCG during a few weeks (UNICEF for two weeks, followed by other possible arrangements if needed for longer period)	ICCG and UNICEF
R E S P O N S E P H A S E	**Coordination & Management Arrangements**	
	Once the threat is confirmed contact the government to know: 1. National capacity **to deal with the emergency** 2. Intent to **declare a state of emergency** 3. **Intent to request, welcome or decline** international assistance**.** - **If welcomed**, outline support options available, request approval for additional humanitarian staff's entry into the country, and the need for UNDAC team or Search and Rescue assistance (ideally INSARAG members) in case of earthquake or collapse or urban structures - If assistance is **declined** but nonetheless required, HCT to increase their capacity to respond	RC/HC & OCHA
	Initiate regular **HCT and ICCG meetings**	HCT & ICCG
	Agree on **response coordination structure at the areas affected** in case not being in place, identify possible gaps (eg. ETC) and leading coordinating organization (based on presence in the affected areas)	HCT & ICCG
	Analyze possible **need for additional resources** from regional/HQ level	RC/HC & HCT
	Organize a **briefing for in-country donors** and ascertain intentions to fund the response	OCHA
	Operational Capacity & Arrangements to deliver relief and protection	
	Identify capacity to respond and **quantify the gaps**	ICCG & OCHA
	Identify required government support at national level (EOC)	ICCG
	Initiate regular cluster/sector meetings	ICCG
	Request Government **logistical assistance for site visits if required**	HCT
	Based on situation and gender analysis identify the most appropriate activities needed to reach potential beneficiaries **(including vulnerable groups)**	ICCG & Protection Sector
	Ensure there is a **clear protection strategy in place**. Ensure appropriate prevention and response mechanisms for sexual and gender based violence	Protection Sector
	Identify potential partners in the areas affected, and its capacities **to support assessments and response**	ICCG

ACTIVITY	WHO
Contact with private sector partners **and identify channels for coordination (UMFCCI)**	OCHA & UNDP
Hold an inter-agency logistics coordination meeting to determine existing logistics capabilities and additional needs	Logistics sector & ICCG
If stocks are being brought from outside the country, advocate with Government authorities on fast-track for custom and importation procedures.	Logistics sector & RC/HC
Review security plans **to see that they are up- to-date and relevant for the area of planned operation**	DSS
Liaise with appropriate Government institutions on security matters	DSS
DSS to regularly update HCT on security situation in the country	DSS
Assessment & Information Management	
Based on secondary data available, develop a situation analysis.	OCHA & MIMU
Analyze the need for launching a joint multi-sector rapid needs assessments **using agreed methodology. Ensure coordination with local NGOs**	OCHA & ICCG
Disseminate MIRA **revised form (hard and soft copies)**	OCHA
Confirm IM focal points **from sector/clusters to coordinate under IM Network**	OCHA & MIMU
Identify required IM support at EOC	MIMU & OCHA
Analyze and share information from assessment **as soon as possible**	OCHA & ICCG
Resource Mobilization	
Analyze and agree on the need to launch a **Flash Appeal**	HCT
Identify **emergency funds capacities** (MHF, CERF) and agree on priorities	OCHA
Reporting	
Confirm sector reporting focal points and provide inputs for the situation report	ICCG
Issue regular Situation Reports **(daily if necessary)**	OCHA
Public Information & Communications with Communities	
Develop talking points and Q&As for RC/HC and HCT	HACG

ICCG

	ACTIVITY	WHO
E A R L Y W A R N I N G	**Upon receipt of early warning information on an imminent threat**	
	Contact OCHA **to inform of the threat** and cross-check information at field level	ICCG members
	Alert **ICCG** and convene a meeting if needed	OCHA
	Review **capacity to respond** (information on available stocks, personnel for assessments, staff deployable for a possible response, including capacity of donors/embassies, AHA Center)	ICCG
	Make recommendations for HCT on inter-agency response plans and additional cluster leads to be on standby	ICCG
	Confirm **reporting and information management focal points at cluster/sector level**	Sector/cluster lead
	Identify constraints for **accessing potential affected populations**	ICCG
	Identify the need and requirements for an operational hub for ICCG during a few weeks (UNICEF for two weeks, followed by other possible arrangements if needed for longer period)	ICCG and UNICEF
R E S P O N S E	**Coordination & Management Arrangements**	
	Initiate regular **ICCG meetings**	OCHA
	Provide recommendations to HCT on response coordination structure at the areas affected in case not being in place, identify possible gaps (eg. ETC) and leading coordinating organization (based on presence in the affected areas)	ICCG
	Analyze possible **need for additional resources** from regional/HQ level	ICCG
	Operational Capacity & Arrangements to deliver relief and protection	
	Identify capacity to respond and **quantify the gaps**	ICCG
	Identify required government support at national level (EOC)	ICCG
	Initiate regular cluster/sector meetings	Sector/cluster lead
	Based on situation and gender analysis identify the most appropriate activities needed to reach potential beneficiaries **(including vulnerable groups)**	ICCG & Protection Sector
	Ensure there is a **clear protection strategy in place**. Ensure appropriate prevention and response mechanisms for sexual and gender based violence	Protection Sector

Identify potential partners in the areas affected, and its capacities **to support assessments and response**		ICCG
Hold an inter-agency logistics coordination meeting to determine existing logistics capabilities and additional needs		Logistics sector & ICCG
If stocks are being brought from outside the country, advocate with Government authorities on fast-track for custom and importation procedures.		Logistics sector
Assessment & Information Management		
Analyze the need for launching a joint multi-sector rapid needs assessments **using agreed methodology. Ensure coordination with local NGOs**		ICCG
Confirm IM focal points **from sector/clusters to coordinate under IM Network**		Sector/cluster lead
Identify required IM support at EOC		MIMU & OCHA
Analyze and share information from assessment **as soon as possible**		OCHA & ICCG
Reporting		
Confirm sector reporting focal points and provide inputs for the situation report		Sector/cluster lead

COMMON SERVICES

Coordination – The Office for the Coordination of Humanitarian Affairs (OCHA) will continue to provide dedicated support to the Humanitarian Coordinator and the Humanitarian Country Team to ensure early warning, needs assessment and analysis, humanitarian response planning, resource mobilization, implementation and monitoring, and operational review and evaluation.

Reporting – In a large-scale emergency situation, OCHA, with support from cluster leads and partners, will produce Situation Reports, a concise document intended to support the coordination of humanitarian response by providing a snapshot of needs, response and gaps in a given emergency. The Situation Report template has been shared and guidance provided to cluster/sector emergency reporting focal points.

Public Outreach and Advocacy – In the event of the onset of a large scale disaster, the Humanitarian Advocacy and Communications Group (HACG) will support and advise the HCT on public information matters. A member of the HACG will be appointed by and report directly to the RC/HC as key media/PI focal point for the disaster. When possible, this would be the OCHA Public Information Officer. In addition to this HACG PI focal point, the RC/HC shall also identify a senior national Communication Officer with experience of media and policy matters. The HACG will form a PI Emergency Working Group immediately at the onset of a major disaster.

Use of Cash Transfer Programming – Cash feasibility and Cash preparedness assessments undertaken in 2016 and early 2017, jointly or separately by members of the Cash Working Group (CWG), Yangon, confirm that Cash Based Programming (CBP) is a relief mechanism that can be implemented in Myanmar, especially in post-emergency and in recovery contexts. The Government, through the Department of Disaster Management has emergency relief operational plans that involve cash transfers through the General Administration Department (GAD), managed at State Level. In practice CBP remains hampered by loose and often inadequate availability of Financial Service Providers in many vulnerable areas. Initial assessments and identification of rapidly expanding financial and mobile money services providers have been initiated and will be updated regularly, so the response using these services can be set-up with minimum delay. In this regard stand-by agreements with selected Financial Service Providers are being contracted by key members of the Cash Working Group (CWG) in Yangon. Cash-in-Envelope remains, for the time being, the only widely practical delivery mechanism. Surveys indicate that first responders with Cash in an emergency would be local communities, local private sector and local authorities. The CWG continues to provide shared information to support coordinated and compatible policies when casting CBP in a preparedness framework, focusing on early recovery. All cash-based programming must take into account protection and gender considerations.

In 2017, WFP undertook an assessment in disaster-prone areas developing cash preparedness profiles in five states/regions (Ayeyarwaddy, Bago, Magway, Mandalay and Sagaing). These cash preparedness profiles have been updated and also included additional State (Rakhine) in mid-2019. To promote consistency and efficiency amongst humanitarian actors the CWG will endeavor to adopt an integrated delivery mechanism, avoiding, as far as possible, multi-channel Cash Based Transfers. The preferred relief CBP policy should be to provide unconditional multipurpose cash.

Engagement with and accountability to affected populations – Engagement with affected communities is essential to ensure that they can be effective actors in the response, taking life-saving actions at household level, accessing response programmes and providing feedback on challenges and gaps. In the case of a large emergency OCHA will immediately appoint a focal point to coordinate communications with communities, with the aim to:

1. Ensure coordinated and effective communications to affected populations (across gender, age, disability and other diversities) on critical life-saving actions that communities can take through the course of the response.
2. Ensure a coordinated approach to two-way communication with affected communities.
3. Ensure systematic mechanisms to collect feedback from affected communities and using this to inform decision-making processes.
4. Ensuring effective measures on the prevention of sexual exploitation and abuse are in place.

Emergency Telecommunications and Logistics Clusters might be activated in order to provide the required services to the humanitarian community:

Emergency Telecommunications – To provide an adequate response capacity in terms of emergency telecommunications infrastructure to the agencies and organizations in the field by: 1) assessing overall ICT needs; 2) procuring, deploying and maintaining the required equipment; 3) upgrading or installing telecommunications network and infrastructure; 4) establishing independent communication mechanisms and Standard Operating Procedures among UNCT agencies; 5) maintaining a list of ICT staff to be deployed and providing training to existing staff; 6) implementing common security telecommunications and data service projects; 7) coordinating the activities through regular meetings with all stakeholders. These arrangements exclude radios for non-UN agencies. WFP will aim to secure a UN countrywide frequency license from Government.

Logistics – To ensure logistics services are provided in a timely manner by: 1) assessing logistics capacity and gaps (road, airport, port, storage, logistics service providers, custom clearance…) and sharing consolidated information through appropriate platform (emails, Log Cluster website); 2) facilitating centralized Log Cluster coordination meeting in Yangon and if required, decentralized ones at regional level; 3) attending inter cluster coordination meetings and supporting the development of funding proposals to augment logistics response capacity for the humanitarian response; 4) liaising with appropriate governmental counterpart at national and regional level (including with the Emergency Operation Center, if activated); 5) coordinating logistics assets and addressing capacity gaps using joint resources from Log Cluster partners; 6) facilitating international supply of emergency assets from Global Humanitarian Depots (UNHRD), and; 7) acting as provider of last resort by providing common logistics services / expertise to the humanitarian community if / when required (overland, air / UNHAS, storage capacity).

Safety & Security – The United Nations Security Management System (UNSMS) through the United Nations Department of Safety and Security (UNDSS) will enable the conduct of humanitarian activities while ensuring the safety, security and wellbeing of personnel and the security of UN premises and assets. UNDSS, and principally the UN Security Adviser, will provide security advice and recommendations to the Designated Official (DO) for Security and the Security Management Team (SMT).

UNDSS will work closely with security focal points of Agencies Funds and Programmes (AFPs) and collaborate with implementing and operational humanitarian partners to ensure timely sharing of information, joint analysis where appropriate, and coordinated security responses. The control, coordination, communications, and information (C4I) functions will be enhanced by the establishment of an inter-agency Security Communications System (SCS) designed to effectively coordinate a response with humanitarian partners and local authorities. The primary means of communications will be mobile telephone networks and subject to Government approval, the SCS will use satellite communications and Digital Mobile Radio (DMR) as back-up.

The DO may establish a Crisis Management Team (CMT) to assist manage a particular crisis. Its composition may vary depending on the nature of the crisis with members drawn from the SMT and other co-opted persons with specific skills determined by the DO as relevant for the crisis. A Crisis Coordination Centre (CCC) may also be established at the Security Operations Centre (SOC) where reliable satellite and some High Frequency telecommunications networks are operational.

OPERATIONAL SUPPORT

NEEDS ASSESSMENTS

Initially, available primary and secondary information will be used to develop a preliminary scenario within the first hours of the emergency. This information will provide a preliminary analysis of locations and populations most affected and will guide the decision to organize an Inter-Agency Multi-sector Initial Rapid Assessment if required.

The template for Myanmar Inter-Agency Multi-sector Initial Rapid Assessment (MIRA) has been developed and updated for a standardized approach to data collection, compilation and analysis. This will ensure disaggregation of data by gender, age and disability and consideration of protection and gender issues. The MIRA form is available in a mobile application (KoBo) to allow assessment teams to gather information directly on mobile devices for a faster transmission of information.

The Inter Cluster Coordination Group (ICCG) will act as facilitator of needs assessment process and a specific needs assessment coordination group will be formed if required. OCHA will analyze the need for assessment surge capacity, including Information Management staff to be based in the area of the disaster.

OCHA responsibilities – OCHA will coordinate multi-sectoral emergency assessments across cluster/sector and will function as a focal point to gather all emergency related assessment data. OCHA will compile assessment results and undertake a primary analysis to be shared with sector/cluster leads, with support from MIMU.

Sector/Cluster leads responsibilities – Sector/cluster leads will engage in all relevant aspects of multi-cluster/sector assessment coordination, including for organizing assessment teams. Sector/cluster leads will analyze primary findings sent by OCHA for further analysis and identification of needs and gaps. Sector/cluster leads are responsible for coordinating sectoral assessment and analysis, ensuring that cross-cutting issues are integrated in the assessment (gender, age, disabilities, communication with communities, etc.).

The cluster/sector IM focal point will inform OCHA on key messages from sectoral assessment, and register in the MIMU website (assessment tracking) all planned, ongoing and completed data collection activities.

INFORMATION MANAGEMENT

UNOCHA and the Myanmar Information Management Unit (MIMU) serve as key agencies for Information Management (IM) in emergencies. Other agencies with strong IM capacity are WFP VAM (Vulnerability Analysis and Mapping) Unit and UNHCR Information Management Unit which provide support where possible. An IM Network is regularly convened by the MIMU to address issues related to IM.

OCHA responsibilities – OCHA will take the overall leadership for information management for the emergency. With the support of MIMU, OCHA will clean, process and analyze available data from the field to produce information products and share them. OCHA will ensure that public datasets are made available through the MIMU for wider dissemination and integrated where relevant into the MIMU wider datasets. OCHA will promote gender-responsive humanitarian action in coordination with UNFPA and UN Women. In April 2018, several GiHA trainings led by OCHA, UNFPA and UN Women have been provided in Myanmar Language in Bhamo (Kachin), Sittwe (Rakhine), Myitkyina (Kachin State), and Lashio (Northern Shan State) to 166 UN, INGO and national NGO national staff. UN Women, UNFPA and OCHA provided another training of trainers on GiHA in Yangon from 22-26 April, 2019. Several multiplier trainers are being planned both at national and sub-national levels.

MIMU responsibilities – The MIMU maintains Common Operational Datasets (COD) and Fundamental Operational Datasets (FOD). The MIMU also maintains key products including a contact list of humanitarian/development actors across Myanmar, a schedule of meetings and extensive "Who does What Where" (3W) products, a survey of surveys, standard place names and place codes (P-codes), baseline data, as well as thematic and base maps, ensures data disaggregation by gender, age and disability.

During an emergency, the MIMU will, under OCHA's leadership, support the preparation of assessment information products (emergency specific maps of affected areas, likely impact maps, organizations present

in the area), prepare other information products such as 3W, contact lists and meeting schedules, and support short term emergency data management in field locations if necessary. If required, MIMU will activate the "emergency 3W" which OCHA will actively support.

IM focal points responsibilities – All clusters/sectors will identify an IM Focal Points before the onset of an emergency. IM focal points will participate in the Information Management Network emergency related activities. Cluster IM focal points have the responsibility of ensuring that data collected within their clusters is according to the Humanitarian Data Standards for Myanmar and includes data disaggregation by sex, age, disability. In addition, IM focal points will ensure that sector assessments are coordinated.

IM network responsibilities – In an emergency, the IM Network will create a separate OCHA-led subgroup fully dedicated for the emergency.

PRIORITY RESPONSE ACTIVITIES & COORDINATION IN EMERGENCIES

The activities described below are those prioritized by sectors and clusters for emergency response in the event of large-scale disasters. These priority activities will be adapted to the context to better address the specificities of the emergency.

EDUCATION
Lead agency: Save The Children and UNICEF
Contact information: Elisa Radisone (Elisa.Radisone@savethechildren.org)

PRIORITY ACTIVITIES
- Establish and conduct emergency repairs to temporary learning spaces and classrooms.
- Distribute essential teaching, learning and recreational materials.
- Provide emergency learning activities and training for children and education personal.

FOOD SECURITY
Lead agencies: WFP and FAO
Contact information: Soi Lang Seng (soilang.seng@wfp.org) and Reda Lebtahi (reda.lebtahi@fao.org)

PRIORITY ACTIVITIES
- Distribute ready to eat food and High Energy Biscuits (HEB).
- Provide life-saving food assistance consisting of basic food basket (including cash).

HEALTH
Lead agency: WHO
Contact information: Dr. Allison Gocotano (gocotanoa@who.int)

PRIORITY ACTIVITIES
- To complement government efforts ensuring immediate treatment of injured people as a result of the disaster and assist with emergency referrals.
- To ensure continuity of essential health services, including life-saving maternal, newborn, child and reproductive health care services through the Minimum Initial Service Package (MISP), noncommunicable diseases, and mental health.
- To prevent, detect, and rapidly respond to communicable diseases through Early Warning and Response System (EWARS).
- To provide technical and information management support for a coherent, coordinated and integrated humanitarian health response

NUTRITION
Lead agency: UNICEF
Contact information: Jecinter Oketch (jaoketch@unicef.org)

PRIORITY ACTIVITIES
- Establish and maintain facilities for treatment of children with acute malnutrition.
- Provide multiple micronutrient supplementations to children 6-59 months and pregnant and lactating women.

PROTECTION

Lead agency: UNHCR
Contact information: Geraldine Salducci (salducci@unhcr.org)

PRIORITY ACTIVITIES

- Establish child friendly spaces and mobile case management teams where required.
- Establish safe spaces and/or mobile case management and outreach services for women, girls and survivors of GBV.
- Distribute dignity kits and other protection kits as needed.
- Establish an emergency complaints mechanism.
- Provide psychosocial care and support to traumatized children and adults.
- Conduct family tracing and reunification (FTR) for children who are unaccompanied or separated.

SHELTER, NON-FOOD ITEMS & CAMP MANAGEMENT AND CAMP COORDINATION

Lead agency: UNHCR
Contact information: Geraldine Salducci (salducci@unhcr.org)

PRIORITY ACTIVITIES

- Provide immediate life-saving shelter such as tarpaulins, basic tools and fixings for damaged homes, along with appropriate non-food items.
- If camps are being established, assess immediate camp management and camp coordination needs

WASH

Lead agency: UNICEF
Contact information: Sunny Guidotti (sguidotti@unicef.org)

PRIORITY ACTIVITIES

- Provide emergency water supply and water treatment tablets/sachets; clean and chlorinate water points.
- Provide emergency latrines in evacuation centers where the affected people remain more than a week and in IDP camps.
- Distribute hygiene kit and disseminate emergency hygiene messages.

COORDINATION ARRANGEMENTS

The Government of the Union of Myanmar (GoUM) holds the responsibility for disaster management through the National Disaster Management Committee (NDMC) chaired by the Vice-President and co-chaired by the Minister of Social Welfare Relief and Resettlement, and the Minister of Home Affairs. The NDMC has 12 Work Committees. At State/Region level, a similar structure exists.

The Humanitarian Country Team (HCT), under the leadership of the Humanitarian Coordinator, is the strategic coordination mechanism in Myanmar to support the GoUM in responding to ongoing and future emergencies. The operational response is organized in 10 sectors/clusters, any number or all of which will be activated based on need.

The following table identifies the cluster/sector leads in Myanmar as agreed by the ICCG in June 2019:

Sector/Cluster	Leads in Rakhine, Kachin and North of Shan States	Leads elsewhere
Camp Coordination and Camp Management (CCCM)	UNHCR[4]	IOM[5]
Education in Emergencies	Save the Children & UNICEF	Save the Children & UNICEF
Shelter & Non Food Items (NFI)	UNHCR[4]	IFRC[5]
Emergency Telecommunications	WFP	WFP
Food Security	FAO / WFP	FAO / WFP
Health	WHO	WHO
• *Reproductive Health Technical Working Group*	UNFPA	UNFPA
Logistics	WFP	WFP
Nutrition	UNICEF	UNICEF
Protection	UNHCR	UNHCR[6]
• *Child Protection Sub-Sector*	UNICEF	UNICEF
• *Gender Based Violence Sub-Sector*	UNFPA	UNFPA
WASH	UNICEF	UNICEF

[4] UNHCR will lead Shelter/NFI and CCCM at national and sub-national levels in case of large-scale natural disaster in Rakhine, Kachin or North of Shan States. IFRC and IOM would look to support UNHCR

[5] IFRC and IOM will lead Shelter/NFI and CCCM respectively at national and sub-national levels in case of large-scale natural disaster elsewhere. UNHCR would seek to support as IFRC and IOM scale-up the required resources.

[6].WFP leads the Food Security Sector in Kachin and northern Shan State due to the absence of FAO

[7]UNICEF will lead the protection sector in case of a large-scale disaster in Mandalay Region

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HCT Myanmar - CONTINGENCY RESPONSE PLAN
Scenario of Cyclone in Rakhine State (June 2019)

OBJECTIVES

The purpose of the Central and Southern Rakhine Contingency Response Plan is to complement the Rakhine State Government's (RSG) efforts to address the life-saving needs and gaps that arise from a large disaster during the critical first week(s). This plan is aimed at guiding the humanitarian community's initial response within its existing capacity until a wider humanitarian response is mobilized, with support from Yangon or beyond, if needed. In order to maintain realistic expectations, the plan is capacity, rather than scenario based.

SCOPE OF THE PLAN

In line with IASC guidance on emergency response and preparedness planning, this exercise focuses on the following hazard/threat category:

Natural hazards, either hydro-meteorological (floods, landslides, storms, droughts) or geophysical (earthquake, volcanic eruption, tsunami). The most likely hazards in Rakhine context are of a hydro-meteorological nature.

The plan covers central and southern Rakhine including the most vulnerable districts of Mrauk-U, Sittwe, Kyaukphyu and Thandwe and their corresponding townships.

CONTEXT ANALYSIS

Rakhine State is among the most disaster-prone areas of Myanmar with thousands of people affected by cyclones, storm surge and flooding on an annual basis. The underlying poverty of the population, weak infrastructure, political tensions, intercommunal violence, ongoing fighting between the Tatmadaw and the AA all increase the community's vulnerability to disasters.

Geographically, Rakhine is isolated from the rest of the country, largely cut off by inaccessible mountain ranges. Within the State there are few paved roads and transport links in several areas are limited to weather-dependent boat routes. Vulnerability is pronounced among communities living in hard to reach areas and remote locations. The majority of the State's population lives in rural areas where housing is traditionally made of bamboo, rather than concrete, reducing resilience to disaster impacts. Hence, the anticipated impact of cyclones in urban Sittwe, is very different to the same cyclone hitting a rural village with underdeveloped infrastructure.

Rakhine has been hit by seven tropical cyclones with varying degrees of severity since the year 2000. The deadliest cyclone in the modern history of Rakhine State was Cyclone Giri in 2010 which killed 45 people, destroyed hundreds of houses and affected an estimated 260,000 people. In 2015, Cyclone Komen caused widespread flooding in Rakhine State affecting 16 townships and damaging almost 11,000 homes and 360 schools. In 2013, Cyclone Mahasen with a speed of 180 mph caused displacement of over 35,000 people across Rakhine. Cyclone Mora made landfall between Chittagong and Cox's Bazar in Bangladesh on May 2017. In Rakhine State, strong winds and heavy rains from the cyclone caused damage to thousands of houses, IDP camps and other infrastructure in the State, with the worst impacts felt in the State's northern areas.

Flooding occurs across the State on an almost annual basis. In 2015, rains associated with Cyclone Komen caused extensive damage. In July 2016, heavy rains caused flooding that affected four townships in Rakhine State, damaging more than 100 houses and killing two people. At least, nearly 14,000 people were temporarily displaced in 2018. Low-lying parts of the coastline are also at risk from storm surge and tsunami.

RISK ANALYSIS

The latest 'Multi-Hazard Risk Assessment in Rakhine State of Myanmar' (European Commission and UNDP, November 2011) identified the State's highest risks as cyclones, followed by conflict/civil unrest, floods and earthquakes. A cyclone in a coastal area is ranked by the HCT as having the highest risk level (20 on a scale from 1 to 25). According to IOM's Disaster Risk Reduction (DRR) Unit, an overall risk profile assessment concluded that wind speeds from cyclones and storms in Rakhine are relatively low but the main damage is

usually caused by flooding. The Rakhine Coordination Group's Disaster Preparedness and Response Working Group has also identified a high level of probability that a cyclone will occur and that this risk is present against a backdrop of low community preparedness, limited but improving local capacity to respond, high levels of vulnerability, high levels of displacement and poor access to services.

Impact and risk analysis for Rakhine State

The ICCG Sittwe validated the impact analysis which is similar to the one conducted in 2018 with 2 slight changes 1) landslide issues is also very likely in Central Rakhine State, 2) new displacement is an aggravating factor.

Hazard	Probability	Impact	Reasons	Vulnerability/Risk factors	
Cyclone	Very likely	Critical	Proximity to water	Location of IDP camps close to shoreline	Lack of shelters, inadequate housing structures (bamboo, tarps)
Floods	Very likely	Critical to Severe	Excessive rainfall	Location of IDP camps including new IDP sites close to rivers	Low lying landscape across most of Rakhine State
Landslides	Very likely	Severe	Heavy rain in mountainous areas	Remote villages locate of paddy field and other livelihood, with poor housing and transport links	Villages in valleys on the path of landslide
Storm surge	Very likely	Severe	Strong winds/ Cyclone/ tropical storm	Coastal areas – IDP camps along shoreline	Flooding

COLLABORATION WITH THE GOVERNMENT

The overall capacity of the Rakhine State Government to manage large scale disasters has been improving in recent years and there is a desire from the Government to take a more prominent leadership role in coordination. The Rakhine State Government has developed a state and township-level Disaster Preparedness and Response Plan which outlines strategies and coordination mechanisms for local governments during emergencies. Over recent years and in support of these efforts, UN agencies and international Non-Governmental Organizations, have worked in close collaboration with the State Government and its line ministries on the development of this complementary Contingency Plan for the humanitarian community.

A key priority identified from the work with the Government is the need to provide fast-tracked approvals processes for humanitarians to reach people affected by disasters. In 2018, an agreement on harmonized government and international community assessments methodology was reached and since then, training of government officials and staff from UN and national and international organizations has been ongoing. Safety arrangements will be made for people who currently do not have freedom of movement.

RESPONSE STRATEGY

Please see SOPs in Annex for further details on roles and responsibilities in emergency settings.

Based on the analysis of stocks, the ICCG Sittwe estimates that the current available capacities of humanitarian actors for the response to disasters can cover multisectoral assistance to approximately 10,000 people affected, subject to access. ICCG Sittwe recommends keeping this level of stocks earmarked for specific response to disasters during monsoon season.

The following principles of intervention will guide the humanitarian response, including assistance during disasters:

- All the information on the humanitarian situation including if provided by the Government or local CSOs, should be cross-checked and confirmed, and different sources of information to determine gaps and areas of intervention,
- Assistance will only be delivered after an independent needs assessment and consultations with affected communities,
- Distributions and activities should be undertaken directly and closely monitored by humanitarian actors,
- Humanitarian actors must be able to conduct independent post-distribution monitoring.

Coordination in Sittwe

On the Rakhine State Government side, the Department of Disaster Management (DDM), under the State Ministry of Social Affairs remains the main counterpart for State level coordination of humanitarian assistance. The Government has urged organizations active in Rakhine State not report to or coordinate directly with the Union Government before consulting with them on the provision of support.

Overall coordination of both humanitarian and development partners in Sittwe is provided by the Rakhine Coordination Group (RCG) under the leadership of the UN Senior Adviser and the Resident Coordinator's Office. Under this revised way of working, a Disaster Preparedness and Response Working Group, chaired by OCHA with participation by all relevant UN agencies, national and international Non-Government and Civil Society Organizations and the Red Cross Movement, handles operational planning for disasters. Operational coordination is also provided through the Inter-Cluster Coordination Group for Rakhine which is chaired by OCHA. The following clusters/sectors are operational in Sittwe: CCCM, Shelter, NFIs, Education, Nutrition, Health, Protection (incl. Child Protection and Gender-Based Violence sub-sectors), WASH, and Food Security. Through the Inter-Cluster Coordination Group (ICCG), clusters/sectors will coordinate their work and support to the response with relevant line ministries. RCO and OCHA will coordinate directly with DDM and other relevant State ministries on disaster response capacity and needs.

Coordination arrangements in northern Rakhine

With regard to humanitarian-specific aspects of inter-agency coordination in northern Rakhine, UNHCR remains the focal point for Maungdaw, Buthidaung and Rathedaung townships through the Maungdaw Inter-Agency Group.

Coordination arrangements in Paletwa, Chin State

Some areas of Paletwa township are particularly exposed to risks of floods, notably related to the overflowing of the Kalandan river which is also crossing several townships in Rakhine State. Logistically, Paletwa township has been proven to be significantly easier to access either for needs assessments or transport of humanitarian items, from Sittwe than from Hakha, the capital of Chin State. Given its proximity to Rakhine State and similarity in terms of humanitarian consequences of various crises, it has been decided to include the coordination of the disaster response in Paletwa township under the operational coordination of the ICCG Sittwe. Liaison with Chin State authorities will be supported by UNICEF Office in Hakha through the OCHA sub-office in Sittwe.

Coordination arrangements elsewhere in Rakhine State

OCHA is not currently present in all townships. Depending on where a disaster occurs, there may be circumstances where OCHA is not able to immediately provide coordination support during the first and very early stages of the response due to access constraints, long travel times, weather, the magnitude of the disaster, etc. In such circumstances, OCHA would rely on support from its RCG partners on the ground to ensure that effective inter-agency coordination support structures are established as early as possible until further assistance arrives. This is critical to ensuring affected people receive assistance at the earliest opportunity.

Scenario 1: Best case

Theoretically it is hoped that an approaching cyclone would provide enough reaction time for OCHA and partners to establish the required coordination support on the ground in a timely and organized manner.

Scenario 2: Worst case

Severe landslides and/or floods as a result of pouring rain which would reduce the community's reaction time. OCHA would establish itself in affected locations with appropriate capacity as soon as possible after a disaster occurs if this is required.

In the event of Scenario 2, RCG partners will initially provide inter-agency coordination support until such time as OCHA's support is deemed necessary and deployed. From Sittwe, OCHA will provide all possible support and guidance until an actual deployment of staff is requested and made possible.

In the event of an emergency, the following tasks/activities would need to be carried out by partners in their geographical area of responsibility until OCHA arrives:

- Convene partners and establish an inter-agency coordination forum to agree on 3W/4W regarding operational strategy/next steps
- Map 3W/4W
- Government liaison at the local level
- Establish ICCG (for those clusters/sectors relevant to establish)
- Prepare needs assessments including identifying available staff to participate
- Reporting/Sit Rep Inputs

RESPONSE PRIORITIES BY SECTOR

EDUCATION
- Set-up safe Temporary (Alternative) Learning Spaces in consultation with communities.
- Provide essential education and recreation supplies (kits and materials).
- Mobilize available psychosocial support for teachers and students, and provide context-relevant life-skills activities including basic health, hygiene, protection learning contents.

FOOD
- Ensure that the affected population has available and accessible food that is safe and nutritious and that meets their daily dietary needs.
- Ensure that the affected population is able to meet their short-term food needs, reduce the need for the affected population to adopt potentially damaging coping strategies and contribute to restoring longer-term food security.
- Ensure that the resilience of affected population's livelihood and their vulnerability to food insecurity are improved through primary production, income generation, employment and access to markets, including goods and services.

HEALTH
- To complement government efforts ensuring immediate treatment of injured people as a result of the disaster and assist with referrals.
- To ensure continuity of essential health services, including life-saving maternal, newborn, child and reproductive health care services through the Minimum Initial Service Package (MISP), noncommunicable diseases, and mental health.
- To prevent, detect, and rapidly respond to communicable diseases through Early Warning and Response System (EWARS).
- To provide technical and information management support for a coherent, coordinated and integrated humanitarian health response.

NUTRITION
- Prevent, to the extent possible, children under 5 and PLW who are identified with risk of malnutrition from developing severe acute malnutrition.
- Ensuring continuation of services for children aged 6 to 108 months and pregnant/lactating women with acute malnutrition who already identified and adequately treated through mobile fix/mobile services.
- Prevent children under 5 and PLW who are identified with risk of malnutrition by making sure Infant and Young Child Feeding (IYCF) practices are supported.

PROTECTION
- Promote that affected people have access to emergency evacuation sites and freedom of movement to

access emergency evacuation sites.

- Promote that emergency evacuation sites are secured for the affected people to be able to find safety with dignity, including that emergency evacuation sites have separate spaces and latrines for women, children, and breastfeeding mothers where possible.
- Promote that emergency evacuation sites are safe for reporting protection incidents (GBV, child protection, and other protection incidents), where protection actors are present
- Ensure to communicate to the community where and when protection services are available.
- Promote Family Tracing and Reunification services where possible so that separated children are identified and reunified with family members.
- Ensure to the extent possible that communication with communities reaches women, the elderly, and people with disabilities, including emergency messaging.

SHELTER

- People whose dwellings have been affected by the disaster are provided with temporary but adequate shelter assistance

WASH, HYGIENE AND SANITATION

- Affected population has equitable and sustainable access to sufficient quantity of safe drinking and domestic water as per sphere standard or WASH Cluster Minimum Standard.
- Affected population has equitable access to safe and sustainable sanitation and live in a non-contaminated environment.
- Affected population adopts basic personal and community hygiene practices.
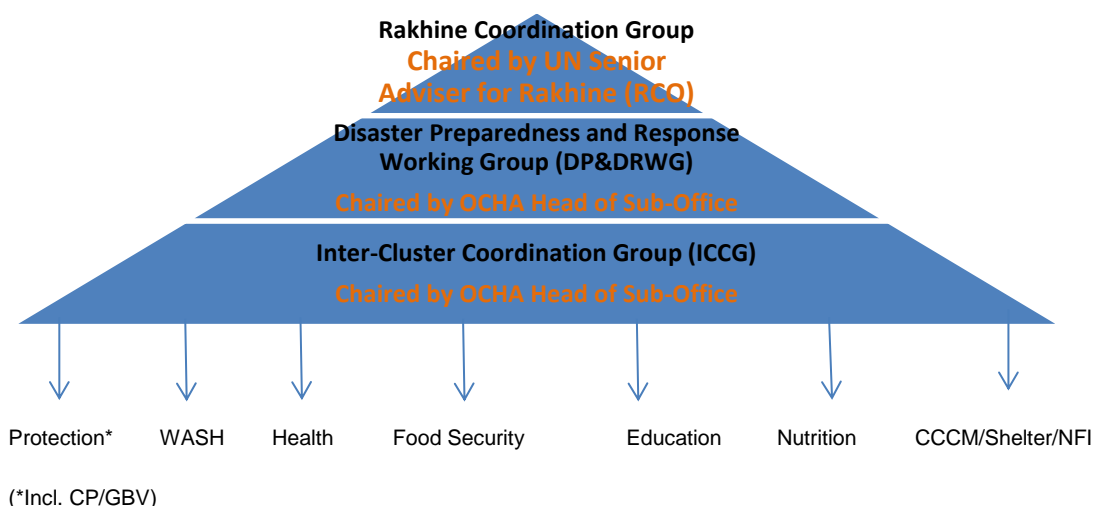
STANDARD OPERATING PROCEDURES (SOP)

Introduction

These Standard Operating Procedures (SOPs) serve as tool for coordinating a multi-sector response to a disaster in Central and South of Rakhine State such as a cyclone, storm surge, flood, landslide and/or earthquake. The SOPs will be used in the following situations:

- where there is a risk of a cyclone which is likely to have severe humanitarian consequences, and where advance arrangements would need to be made in order to prepare for a proper and timely response;
- where the humanitarian community itself is not affected nor impacted by the disaster, which would require prior relocation of staff to a safer place and;
- where the existing in-state capacity is considered adequate and appropriate to respond effectively within the first week, until a more appropriate response is mobilized with support from Yangon, if deemed necessary.

The purpose of these SOPs is to reduce response times and create efficiency and effectiveness with a clear set of instructions for everyone involved in responding to the disaster. The SOPs will guide the respective cluster, agencies and individuals in terms of roles and responsibilities in their specific key performance areas and according to their mandates.

SECTION 1: GENERAL COORDINATION ARRANGEMENTS

Rakhine Coordination Group
Chaired by UN Senior Adviser for Rakhine (RCO)

Disaster Preparedness and Response Working Group (DP&DRWG)
Chaired by OCHA Head of Sub-Office

Inter-Cluster Coordination Group (ICCG)
Chaired by OCHA Head of Sub-Office

Protection* WASH Health Food Security Education Nutrition CCCM/Shelter/NFI

(*Incl. CP/GBV)

Under the auspices of the Rakhine Coordination Group (RCG), the Disaster Preparedness and Response Working Group (DP&DRWG) is chaired by OCHA and is comprised of all participating humanitarian UN agencies, international and national NGOs, and the Red Cross Movement (ICRC/IFRC/MRCS). The Working Group will be used to coordinate the overall response at the Rakhine State level among humanitarian partners and will report to the HCT in Yangon.

In addition, Clusters/Sector Coordinators for Camp Coordination and Camp Management (CCCM), Shelter/Non-Food Items (NFIs), Education, Nutrition, Health, Protection (incl. Child Protection and Gender-Based Violence), Water, Sanitation and Hygiene (WASH), Early Recovery and Food Security are in place and will be used to support a coordinated response under the management of the Inter Cluster/Sector Coordination Group (ICCG).

Government Coordination

On the Rakhine State Government (RSG) side, the Department of Disaster Management (DDM), under the State Ministry of Social Affairs remains the main counterpart for State level coordination of humanitarian assistance. OCHA/RCO will coordinate directly with DDM and other relevant state authorities/officials such as the Chief Minister, Security Ministry and State Secretary (GAD). Clusters/Sectors will coordinate their work and support to the response with relevant line ministries.

SECTION 2: WHEN A DISASTER OCCURS

➢ **Triggers**

Before the disaster occurs

The trigger for activating the contingency plan will be a red alert received through early warning systems with a possible medium to large scale impact on Rakhine State, as well as other relevant triggers such as heavy rainy for a minimum of three consecutive days, which can result in severe landslides and/or flooding. An alert on the latter can also be received from communities directly and/or government authorities e.g the Department of Meteorology and Hydrology.

After the disaster has occured

The trigger for activating support to a humanitarian response will be a solicited or unsolicited request from the Rakhine State Government.

> **In the event of a cyclone – procedure before landfall**

As soon as an alert has been received of a forthcoming cyclone that may have significant humanitarian impact, OCHA will convene the DP&DR Working Group to:

- Update humanitarian partners on the cyclone projection(s) and its possible impact (based on the disaster impact model),

- Update humanitarian partners on Rakhine State Government (RSG) preparedness activities and other measures that are taken to mitigate impact and other updates as relevant. OCHA/RCO will liaise as necessary with RSG to maintain proper communication and coordination linkages.

- Share updates from affected communities represented by designated focal points among national NGOs and CSOs.

- Work with Clusters/Sectors to update and share Township profiles for areas most likely to be affected so that baseline data is available for the initial response.

- Decide on next steps and actions to be taken by humanitarian community.

> **Communication procedures:**

- The agency (or agencies if more than one is contacted) that first receives information of a disaster, immediately informs the Head of OCHA Sub-Office in Rakhine. If the receiving agency happens to be a sector lead as well, then verification with respective government counterparts must also take place.

- The Head of OCHA Sub-Office in Rakhine consults the lead agencies and cluster leads to decide on the next steps and informs the UN Senior Advisor to Rakhine. If necessary, the DP&DR Working Group would be convened for further coordination, strategy setting and information sharing.

- The DP&DR Working Group will assess the information available, establish the scope of possible consequences and decide on the next steps and actions, including follow up with the RSG and affected communities.

- All information shared by respective agencies will be managed, consolidated and systematized through OCHA in order to identify gaps and inconsistencies in the information available.

- The decisions of the DP&DR Working Group will be shared with the HCT in Yangon for information, support and further action as deemed necessary.

SECTION 3: ROLES AND RESPONSIBILITIES

OCHA Rakhine:

- The Head of the OCHA Sub-Office in Rakhine will be responsible for coordination of the emergency, under the auspices of the Rakhine Coordination Group (RCG) led by the UN Senior Advisor, with the RSG and the wider humanitarian community. They will also support the advocacy efforts of the UN Senior Advisor with relevant parties for application of the humanitarian principles and to secure humanitarian space (including access to affected areas and people).

- OCHA will use the DP&DR Working Group meetings to have operational discussions about the humanitarian response and, depending on the circumstances, suggest creation of any additional coordination mechanism as deemed/relevant necessary. OCHA will also coordinate any necessary assessments in consultation with Clusters/Sectors and the Government, joint resource mobilization (Flash Appeals and CERF applications), provide Information Management (IM) services and produce joint situation reports.

- OCHA will provide an updated contact list for officials and actors at the township level.

- OCHA will update and make available Township Profiles to the ICCG including relevant baseline data as a guide to immediate decision-making in the initial stages of a disaster.

The Disaster Preparedness & Disaster Response Working Groups (DP&DRWG):

At the first meeting convened after the disaster (to which the cluster/sector leads will be invited), the agenda will focus on the following issues:

- Achieving a common understanding of the scope and possible impact of the disaster through sharing information among humanitarian partners
- Agree on overall strategy and priorities for the immediate response
- Agree on which cluster/sector responses should be involved
- Review contingency stocks and baseline data including Township Profiles.
- Nominate an information/reporting focal point from each cluster/sector. This is the responsibility of the cluster/sector leads. It may be the Coordinator themselves or they may appoint someone else to provide regular information to OCHA on needs, gaps and response efforts.
- In collaboration with the Communicating with Communities Working Group, formulate key messages as guidance for actors in their communication with the wider international community and affected people.
- Agree on issues that need to be taken up with the Rakhine State Government including on needs assessments (e.g. Initial Rapid Assessment-IRA) and access procedures.
- Clarify coordination arrangements at the township level, roles and responsibilities including agencies with a field presents, based on capacity and footprint as needed, and agree on next steps.

The venue of the meeting will be either the OCHA office or an alternative location communicated by OCHA.

The Cluster/Sector Coordinators:

Cluster/Sector Coordinators are responsible for operational coordination at the intra-cluster/sector level, which entails, among other things:

- Convening sector meetings; preparation and dissemination of meeting minutes.
- Leading sector needs assessments and analysis in consultation with OCHA.
- Coordination of sector response plans of all actors and interactions with national partners.
- Facilitation of sector monitoring and reporting, including contributions to situation reports.
- Promoting information sharing within the cluster and with other clusters/sectors.
- Generating and maintaining cluster/sector specific information (e.g. contact lists, datasets, needs/gap analysis, policy or technical guidance, etc.).
- Referral of relevant information received to colleagues in other Clusters/Sectors.

Each cluster/sector will identify an information focal point that is responsible for providing all relevant information in a timely manner. This information will form the basis for the compilation of situation reports, development of Who, What, Where, When (3W/4W), mapping and other information services that are necessary to ensure effective coordination.

Rapid needs assessments at the sector level will be triggered in consultation with the Rakhine State Government using agreed forms. Please see below.

Standard Operating Procedures (SOP)/Guidance

Emergency Assessments

To overcome any possible delays in mobilizing staff for assessments due to Travel Authorization processes, the Coordination Committee of the Rakhine State Government has pre-approved a list of names from the humanitarian community who are authorized to participate in joint needs assessments after an emergency. These names were sourced through sectors and clusters.

A format for joint assessments was agreed with the RSG and available to collected data through mobile devices (KoBo). Since 2018, ongoing training on the use of the join assessment format for Government officials and staff from humanitarian organizations including a simulation exercise held in 2018 using mobile devices to collect below data in general.

- Areas affected and the scale of the damage
- Number and kind of people affected (disaggregated by sex and age), including number of casualties and injuries and particular vulnerabilities in the affected location
- Extent of displacement

- Needs and gaps
- Responses to date
- Operational constraints (e.g. access)
- Financial requirements to fill the identified gaps
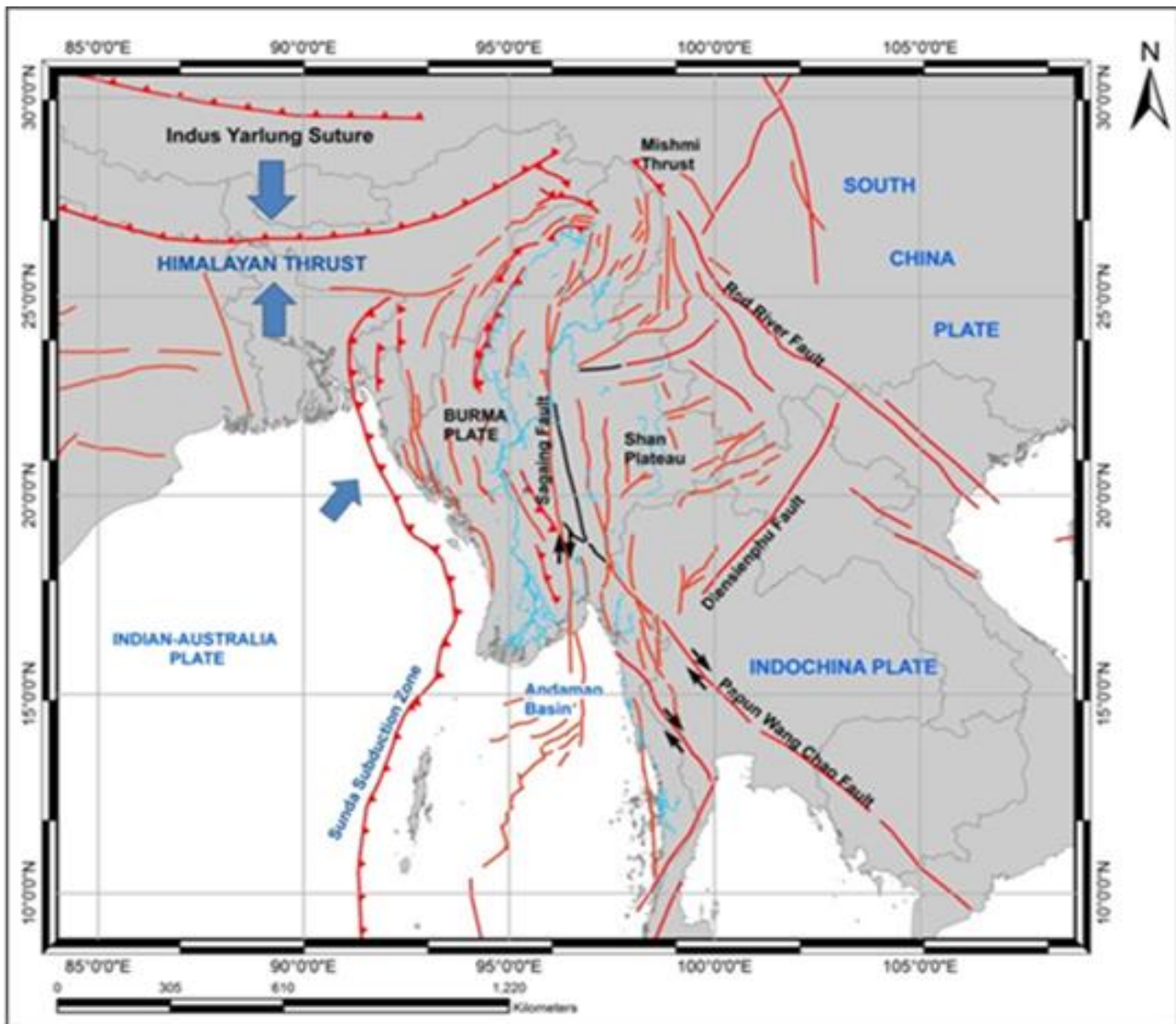- Other information as necessary

SCENARIO

1. Background information on earthquake disasters and hazard

Mandalay is the second-largest city in Myanmar and located on the east bank of the Irrawaddy River. The city has a population of 1,225,553 according to 2014 census.

Mandalay lies closed to the most active fault in Myanmar along the Sagaing fault. Several earthquakes happened in and around Mandalay – Amarapura – Innwa - Sagaing region from the beginning of 1400. Among them the most distinct event is the Innwa earthquake struck on July, 1839.

The biggest earthquake in its history, with a magnitude of 7, occurred in 1956. The devastation was greater in Sagaing region than Mandalay region and it came to be known as the Great Sagaing Quake.

The latest earthquake near Mandalay, with a magnitude of 6.8, was in August 2016 fortunately without major damages.
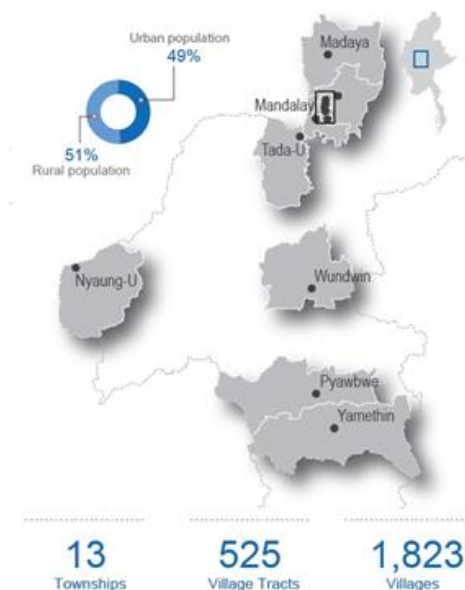
Seismicity of Mandalay Region (from 1429-1956)

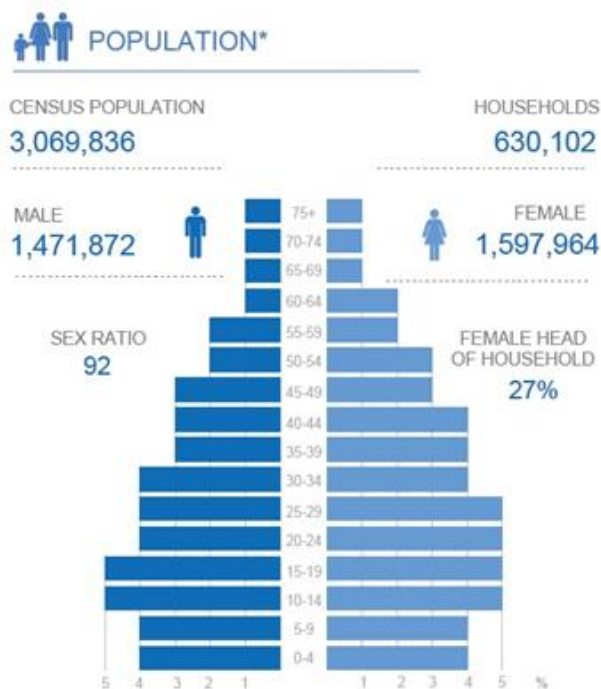| Date	Location	Magnitude or brief description
1429	Innwa (near Mandalay)	Fire-stopping enclosure walls fell
1467	Innwa (near Mandalay)	
July, 1485	Mandalay	
1501	Innwa (near Mandalay)	
June, 1620	Innwa (near Mandalay)	Ground surface broken, river fish were killed after quake
Sept, 1646	Innwa (near Mandalay)	
June, 1648	Innwa (near Mandalay)	
Sept, 1660	Innwa (near Mandalay)	
Apr, 1690	Innwa (near Mandalay)	
Sept, 1696	Innwa (near Mandalay)	4 well-known pagodas destroyed
Aug, 1714	Innwa (near Mandalay)	The water from the river gushed into the city
Jul, 1771	Innwa (near Mandalay)	
June, 1776	Innwa (near Mandalay)	
April, 1830	Innwa (near Mandalay)	
Mar, 1839	Innwa (near Mandalay)	Old palace and many buildings demolished
Mar, 1839	Innwa (near Mandalay)	The river's flow was reversed for some time; about 300 to 400 persons killed
July, 1956	Sagaing	
Nov, 2012	Thabeikkyin (Sagaing and Mandalay)	Richter Scale 6.8. Death toll 18 and 116 injured
Aug, 2016	Chauk (Magway and Mandalay)	Richter Scale 6.8. People in Mandalay felt strong tremors. Four people were killed and 68 stupas and pagodas were damaged

2. Scenario definition and population affected

There are 13 out of 28 townships in Mandalay that might be affected by an earthquake. Besides the population in the city, townships along Ayeyawaddy River are those at higher risk (8 townships in the region and 5 in the city). The total population in these twelve townships is around 3,000,000.

The scenario for this contingency plan is an earthquake in Mandalay that might affect about 10 per cent of the total population living in the thirteen high risk areas townships mentioned above (300,000 people).
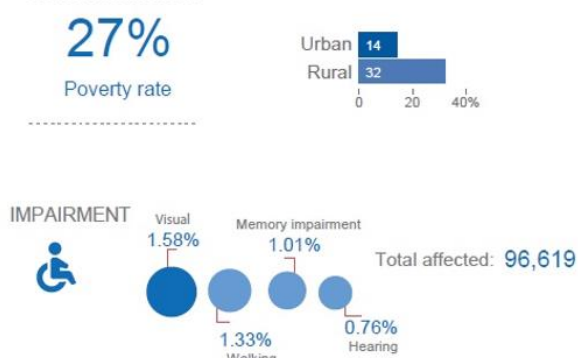

Population per township at high risk

#	Township	Population
	MANDALAY CITY	
1	Aungmyaythazan	265,779
2	Chanayethazan	197,175
3	Mahaaungmyay	241,113
4	Chanmyathazi	283,781
5	Pyigyitagon	237,698
	Total	**1,225,546**
	MANDALAY REGION	
6	Amarapura	237,618
7	Patheingyi	263,725
8	Mattara	258,001
9	Yamyinthin	258,091
10	Pyawbwai	260,293
11	Tada-U	138,617
12	Nyaung-U	198,185
13	Wandwin	229,760
	Total	**1,844,290**

3. Planning assumptions and main humanitarian needs

Planning Assumptions	Main Humanitarian Needs
- **Loss of lives and high numbers of people injured** - **Many buildings (houses, schools, hospital, government building, etc.) will be destroyed, schools closed, shelter requirements will be high, challenging management of limited temporary evacuation locations** - **Religious buildings that could be used as temporary shelter will be damaged** - **Basic infrastructure (roads, bridges, etc.) destroyed or damaged bringing important access constraints** - **Water supply infrastructure affected causing water shortages** - **River routes might be changed, affecting transportation** - **Electricity disrupted** - **Livelihood activities such as agriculture and local business affected** - **Food stocks and agricultural land affected causing immediate and longer term food insecurity** - **Some secondary hazards such as fire, landslides**	- Search and rescue for survivor within the first 72 hours - Provision of high energy food and basic food assistance - Provision of Non Food Items (NFIs), and emergency shelters - WASH in emergency - Emergency health including psychosocial support. - Reestablishing transportation systems and electricity supply - Family tracing and reunification - Protection and security - Livelihood, job opportunities (early recovery) - Education in Emergencies

The main bridges connecting Mandalay which might be affected are the following:
– Yardanarpon bridge (Sagaing-Mandalay)
– Nga O bridge (Kachin-Mandalay)
– Dothtawati bridge
– Inwa bridge
– MyitNge bridge

4. Response & Government capacity

With the support from the national government and civil society in the region, the regional government would be able to provide emergency assistance to up to 25% of the total population affected (75,000 people). The regional government has capacity to respond to basic needs such as food and water provision for the immediate response but will be challenged by the very much needed Search and Rescue due to insufficient equipment, technical capacity and trained human resources. Earthquake assessment will be undertaken by Mandalay local authorities with the support and coordination with the Ministry of Social Welfare, Relief and Resettlement, Ministry of Home Affairs, Ministry of Defense, Ministry of Health and Sports, related government departments and MRCS.

Current capacity for health care is the following:
– General hospital
– Children hospital
– Women's hospital
– Labor hospital
– Tuberculosis & communicable diseases hospital
– Sanga (Monk) hospital
– Teaching hospital
– Private hospitals
– Orthodontic hospitals
– Township hospitals if needed
– Military hospital
– Government and Non-Government Partners will provide trained staff for the medical response

COORDINATION & MANAGEMENT ARRANGEMENTS

1. Humanitarian Coordination structure for a response in Mandalay Region

At the end of 2012, the HCT revised the sectoral response in country and agreed on activating three clusters to strengthen a coordinated response to the Kachin and Rakhine emergencies. The other sectors agreed to function as if they were clusters. In addition, some sectors/clusters have created sub-sectors such as Child Protection and Gender-Based Violence under the Protection Sector, and Sexual and Reproductive Health under the Health Cluster.

Although the current cluster/sector structure is focused on the emergencies in Rakhine and Kachin, a sectoral humanitarian architecture and leadership will be established in case of an earthquake in Mandalay severely affecting 300,000 people.

The following table identifies the sector leads for

the scenario of an earthquake in Mandalay, taking into account that some of the sectors might be activated to cluster if deemed needed.

Sector	Lead Agency
Camp Coordination and Camp Management (CCCM)	IOM
Education in Emergencies	Save the Children & UNICEF
Shelter & Non-food Items (NFI)	IFRC
Emergency Telecommunications	WFP
Food Security	FAO / WFP
Health	WHO
- Reproductive Health Technical Working Group	UNFPA
Logistics	WFP
Nutrition	UNICEF
Protection	UNICEF
- Child Protection Sub-Sector	UNICEF
- Gender Based Violence Sub-Sector	UNFPA
WASH	UNICEF

In Mandalay UNICEF, UNDP, SCI, WV and CARE have offices with different projects and activities being undertaken in coordination and collaboration with Regional Government. Since 2014, OCHA keeps a close communication with local authorities; and a scenario-based plan for an earthquake was developed and trainings on international humanitarian mechanisms and MIRA methodology conducted (the latter training conducted in May 2016 and attended by 12 organizations).

In 2017, a basic operational response plan was developed through the involvement of local authorities and humanitarian partners looking at the complementarities of the various stakeholders.

2. Coordination with Government/Civil Society and National NGOs

2.1 Government of the Republic of the Union of Myanmar and Mandalay Region Government

Union Level – The Disaster Management Law (DML) was passed in 2013 and its regulations in 2015.

In line with the DML, the Government established the National Disaster Management Committee (NDMC), the highest decision-making body for disaster management. Since the new government came into power in April 2016, the NDMC has been revised and the new structure formed on 31 May 2016. Under the NDMC, the new

operational structure which includes 12 working committees, was approved in July 2016. The structure in Mandalay Region will likely be similar to the national one.

2.2 Civil Society and National NGOs

Mandalay has a strong network of national NGOs and Civil Society organization (CSO) which have been involved in the development of this contingency plan, were briefed on international humanitarian architecture and trained on MIRA approach and primary data collection. In the event of an earthquake in Mandalay the coordination with national partners will be established from the onset through Brahmaso network. Similarly, there is a communication established with MRCS in the region.

OPERATIONAL ARRANGEMENTS

Response – This scenario will likely require the deployment of foreign Urban Search and Rescue (USAR) teams, through INSARAG, to support the Government of Myanmar in the initial hours. To help coordinate international USAR teams responding to the disaster, UNDAC teams will likely be requested to support the Government on identifying and deploying the teams to priority areas. In addition, UNDAC team might also be requested to support the Humanitarian Country Team in coordinating the response and conducting initial rapid assessments.

Sectoral response will be based on the response plans developed for the scenario of cyclone in Rakhine as provision of life-saving services will be similar to the scenario of earthquake in Mandalay.

Logistics – The logistics cluster will be activated and regular meetings convened with all stakeholders to collect and share relevant logistical information (including in country stocks of relief items, emergency inventory from regional depot) and ensure efficient use of available assets and infrastructure. The logistic cluster will ensure engagement with the government, particularly regarding fast track customs clearance procedures, landing permits and other relevant emergency procedures. A digital version of the Logistics Capacity Assessment is available online (http://dlca.logcluster.org/display/public/DLCA/Myanmar). The document is continually updated with new information and the last overall update took place in 2018, including information on logistics infrastructure and assets in and around Mandalay as well as information related to cold chain and further assessments / updates will be conducted in Q3 2019.

The extent of the disaster and the feasibility of using cash transfer modalities will define the size of logistics operation to be established. In case international aid is required, air supply will reach Myanmar through airports in Mandalay (if functional, either international, or alternatively, military) or international airports in Naypyidaw/Yangon. International sea supply through the port of Yangon will also be organized for cargo supplied regionally or internationally through large shipping hubs in Singapore or Malaysia.

In case overland transport is limited due to broken roads and/or bridges, support through river barges will apply until repairs can be made, either directly from Yangon (lead-time of 5-6 days) or on shorter distances for river port near Pakokku or even closer to Mandalay.

Warehouse capacity in or near Mandalay is available with a number of actors present in the area but could be further increased either through rental from private owners or using mobile storage equipment. Stocks of emergency relief items, both food (up to 100 MT of high energy biscuits, as well as rice, which could be diverted from other projects) or none food (logistical equipment such as mobile storage unit, mobile hubs, prefabs and generators) are available in Yangon and can be transferred to Mandalay within a few days depending on infrastructure damage. Sourcing of additional relief items can be done partially in country to a large extent and specialized equipment will be sourced from UN Humanitarian Response Depot (UNHRD) in Subang, Malaysia, and transferred either by air or by sea (regular shipping lines supply to Yangon from Malaysia with a lead time of 8-10 days).

LESSONS FROM THE SIMULATION EXERCISE

In February 2018, the Government of Myanmar conducted a simulation exercise with the scenario of an earthquake in Mandalay Region, with the support from the humanitarian community. The aim of the simulation exercise was to test the readiness of the National Disaster Management Committee' (NDMC) working committees and the regional government for responding effectively to the potential impacts of a major earthquake

The simulation also practiced the key areas of coordination and information sharing within the NDMC Working Committees and with the Mandalay regional committee, focusing on the protocols and communication elements as specified in the relevant guidelines, in particular the NDMC working committees and NDMC earthquake response plan (draft). Aspects of how the humanitarian community is integrated into the national disaster response was also included as well as well as the process to request specific international available tools and services to support the response to an earthquake scenario.

Distilling participants' recommendations from the debriefing session and synthesizing this with facilitators' suggestions, the following recommendations were made. Most recommendations presented during the debrief fell into three key thematic areas: coordination, information management and others.

Coordination Mechanisms with the Government departments, development partners, private sector and agencies

- Recognizing the importance of a clear understanding of roles and responsibilities from all levels ahead of an emergency, the **coordination between the national disaster management structure organized in working committees, the region/state disaster management committee and the HCT should be clarified and better linked**.

- Related to the above, **strong coordination and communication** between the national and the state/region needs to be strengthened.

- In the same line, it was suggested to establish a **protocol and terms of reference for the deployment of the Disaster Management Center (DMC) outreach branch** (included in the Disaster Management Law) to the affected area to work with region/state disaster management committee and support the coordination with all stakeholders.

- Also important to identify the **linkages amongst the stakeholders at the sub-national level** to ensure effective preparedness and response.

- In terms of preparedness, **each working committee (national and state/region) should develop the structure of their coordination**, collaboration and linkages with the other working committees and respective military commands.

Information Management

- The exercise demonstrated the challenges to obtain **accurate information in a timely manner**. Information management is critical for a successful emergency response as analyzed data is the basis to understand the impact of the disaster and the most urgent needs. It is needed to define and agree how the data from the affected areas will be collected, collated, validated, analyzed and disseminated. Clear **responsibilities and focal points** should be defined before disaster happen.

- Related to the above, at this stage there are three departments and ministries dealing with data and information management namely 1) the General Administration Department which collects initial data at village/township level, 2) the Central Statistic Organization leading the Initial Needs Assessment, Verification of Loss and Damages and Identification of the Needs work committee, and 3) the Department of Disaster Management in charge of managing the Disaster Management Center when activated during emergencies. A **political decision is needed to clarify the responsibilities of each of them within the information management cycle** looking at complementing rather than competing efforts.

- There was considerable agreement on the need to **establish a common system for information management** in order to **speed up the data gathering and analysis** for a good informed decision making process during disasters. The use of available mobile technology for data collection such as KoBo used by the Department of Disaster Management, will contribute to a faster analysis of the impacts of a disaster.

- In addition, participants were not always aware of the **path and protocol for the flow of information** upwards to the national/Union level, including the frequency of reporting. Establishing a flow chart was recommended.

- Similarly, important to agree on a **common multi-sectoral questionnaire, methodology and guidance** to be used by concerned departments at sub-national and national levels during emergencies.
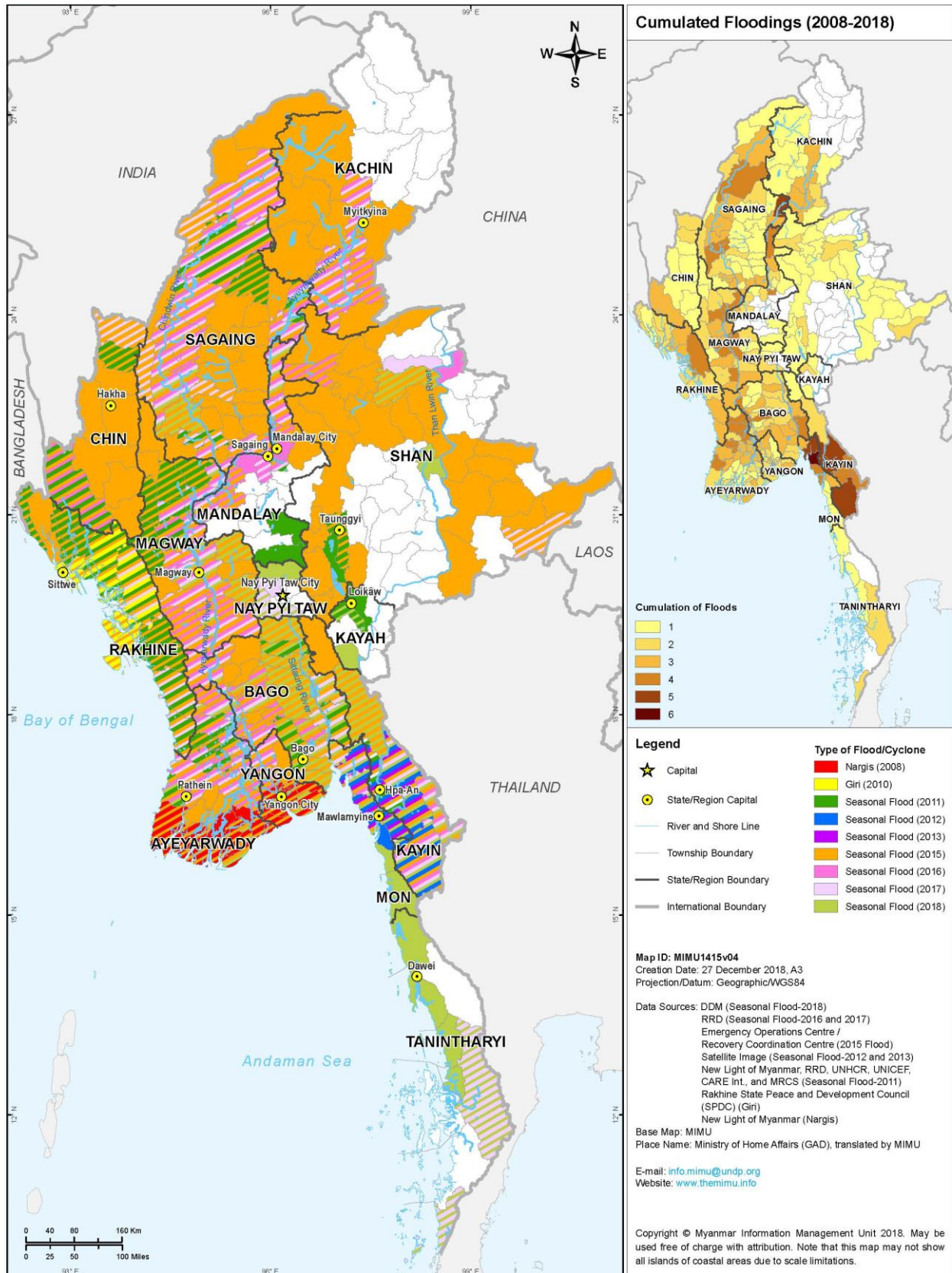
- One of the final steps of the information management cycle is the **reporting and dissemination** for internal and public consumption. A faster data collection and analysis will facilitate the reporting phase which will also benefit from establishing the set of products and audiences to be served during emergencies.

- From a preparedness point of view, the importance of a common understanding of the **available secondary data to be use during emergencies** to analyze the impact of the disaster, was highlighted. Those data sets to be ready in advance.

- To ensure a better understanding of the capacities for the response, it will be very useful to conduct a **mapping exercise of available resources at different levels** (national to village level). It is critical to have access to the following information on capacities for the response: human resources and support capacities such as vehicles and logistics; locations for temporary shelters; food availability and water sources; medicines; companies producing relief items; etc.

- To establish a formal **system/mechanism for information exchange between civilian and military responders** at regional or district level to guarantee a common understanding of the most pressing needs.

Working Committees SOPs and others

- To ensure that the **Working Committees' SOPs** are useful for the response, they should **be reviewed and revised** accordingly to reflect the reality of the changing context, including those at the state/region level. The WC' functions and the Government departments' response plans should be aligned as much as possible to avoid conflicting objectives and procedures during emergencies.

- An effective disaster response during large emergencies entails **civil-military coordination** and with that objective, representatives from the military are members of the NDMC working committees. However, the response and efficiency will be enhanced by **establishing the coordination protocols at the preparedness** phase including establishing a communication tool to know the available resources from the military that can be used for the disaster response.

- During the exercise it became apparent that some of the instructions of the Disaster Management Law and rules will benefit from a revision to be adapted to the evolving context. It was recommended to **review the DML instructions to ensure clarity for its implementation during emergencies.**

There is a considerable benefit to **conduct regular simulation exercises** with all relevant stakeholders at both national and states/regions levels especially in the disaster high risk areas to ensure an effective level of preparedness.

Townships Affected by Floods and Cyclones over the Last 10 Years
(2008-2018)

MIMU

Canada

Cumulated Floodings (2008-2018)

N
W E
S

INDIA

CHINA

KACHIN

Myitkyina

SAGAING

BANGLADESH

Hakha

CHIN

Sagaing Mandalay City

SHAN

MANDALAY

Taunggyi

MAGWAY

Magway

Nay Pyi Taw City

NAY PYI TAW

Loikaw

Sittwe

LAOS

RAKHINE

KAYAH

BAGO

Bay of Bengal

Bago

Pathein YANGON

THAILAND

Yangon City

Hpa-An

Mawlamyine

AYEYARWADY

KAYIN

MON

Dawei

Andaman Sea

TANINTHARYI

Cumulation of Floods

	1
	2
	3
	4
	5
	6

KACHIN
SAGAING
CHIN
SHAN
MANDALAY
MAGWAY
NAY PYI TAW
KAYAH
RAKHINE
BAGO
YANGON KAYIN
AYEYARWADY
MON
TANINTHARYI

Legend

★ Capital
⊙ State/Region Capital
— River and Shore Line
— Township Boundary
— State/Region Boundary
— International Boundary

Type of Flood/Cyclone

■ Nargis (2008)
■ Giri (2010)
■ Seasonal Flood (2011)
■ Seasonal Flood (2012)
■ Seasonal Flood (2013)
■ Seasonal Flood (2015)
■ Seasonal Flood (2016)
■ Seasonal Flood (2017)
■ Seasonal Flood (2018)

0 40 80 160 Km
0 25 50 100 Miles

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