



EOC/(DDM) Activities of Space-Based Information for Disaster Management in Myanmar

Presented by
Nu Nu Khaing

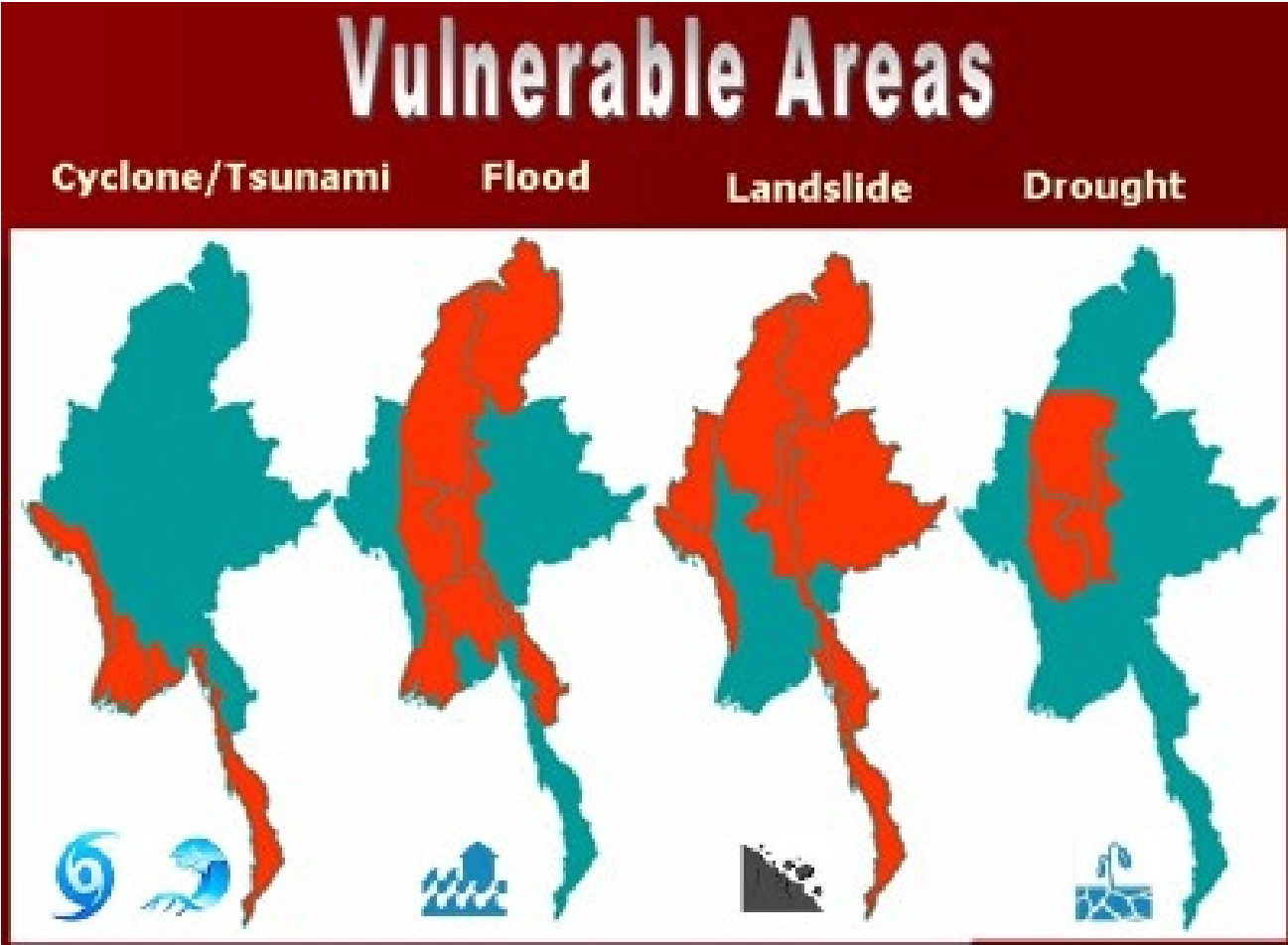
6th Joint Project Team Meeting of Sentinel Asia STEP-3
(JPTM2018Awaji)

Nov 1-2; 2018, Awaji Island,
Hyogo, Japan

Outline of the Presentation

- Myanmar's Country Profile with Myanmar's Vulnerability Areas
- Institutional Arrangement
- Organizational Structure
- Utilization of Space-based Information
- Cooperation between DDM and DMH, MIMU
- Cooperation with International Charter and Sentinel Asia

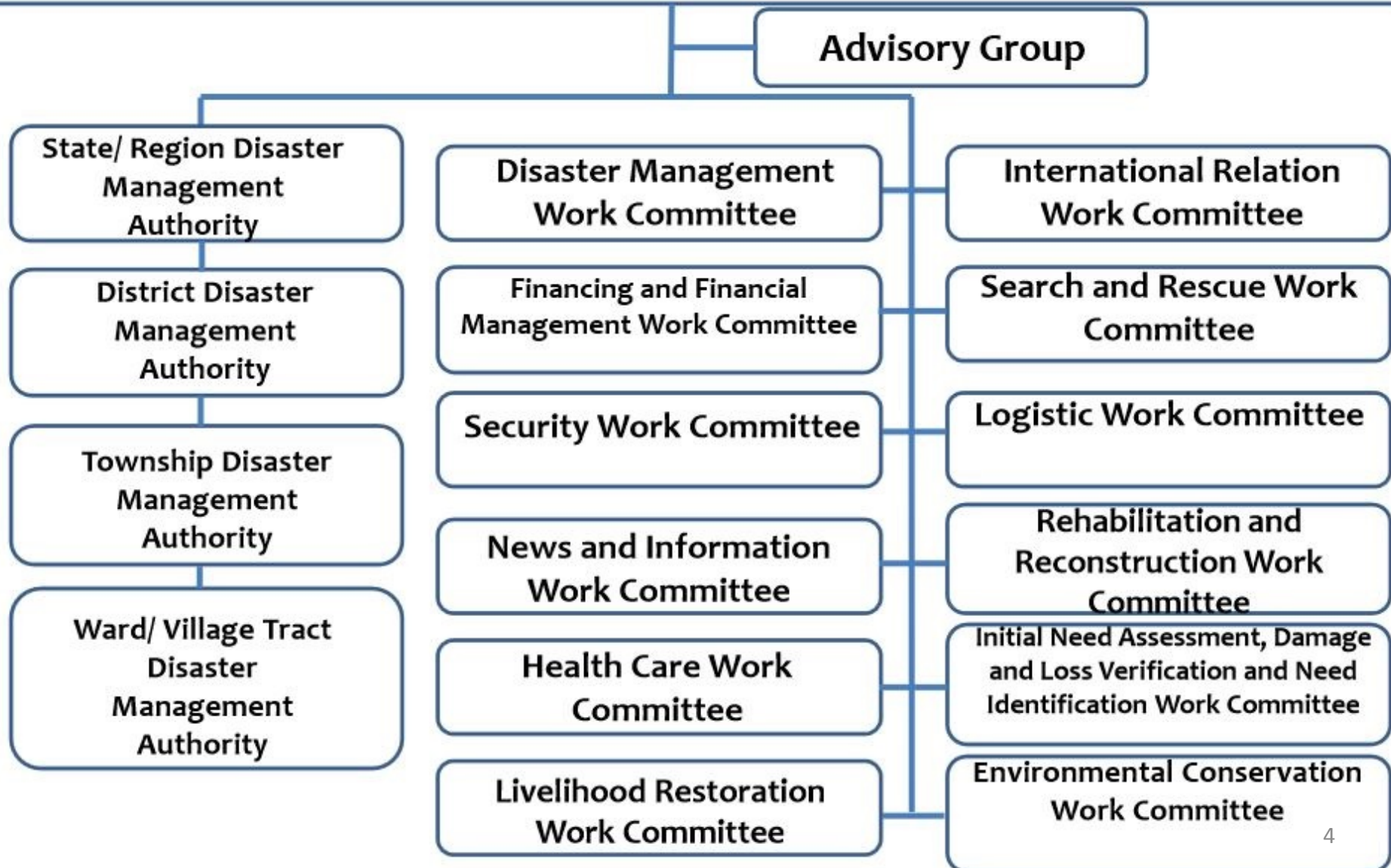
Myanmar's Country Profile with Myanmar's Vulnerability Areas



Ref: <https://slideplayer.com/slide/11505017/>

Institutional Arrangement for Disaster Management in Myanmar

National Disaster Management Committee (NDMC)



Formation of National Disaster Management Committee (NDMC)

1	Vice President (2)	Chairman
2	Union Minister for Home Affairs	Vice Chair
3	Union Minister for Social Welfare, Relief and Resettlement	Vice Chair
4	Union Minister for State Counselor's Office Ministry	Member
5	Union Minister for President's Office	Member
6	Union Minister for Defence	Member
7	Union Minister for Border Affairs	Member
8	Union Minister for Information	Member
9	Union Minister for Religious Affairs and Culture	Member
10	Union Minister for Agriculture, Livestock and Irrigation	Member
11	Union Minister for Transport and Communication	Member
12	Union Minister for Natural Resources and Environmental Conservation	Member
13	Union Minister for Electric Power and Energy	Member
14	Union Minister for Labour, Immigration and Population	Member
15	Union Minister for Industry	Member

Formation of National Disaster Management Committee (NDMC)

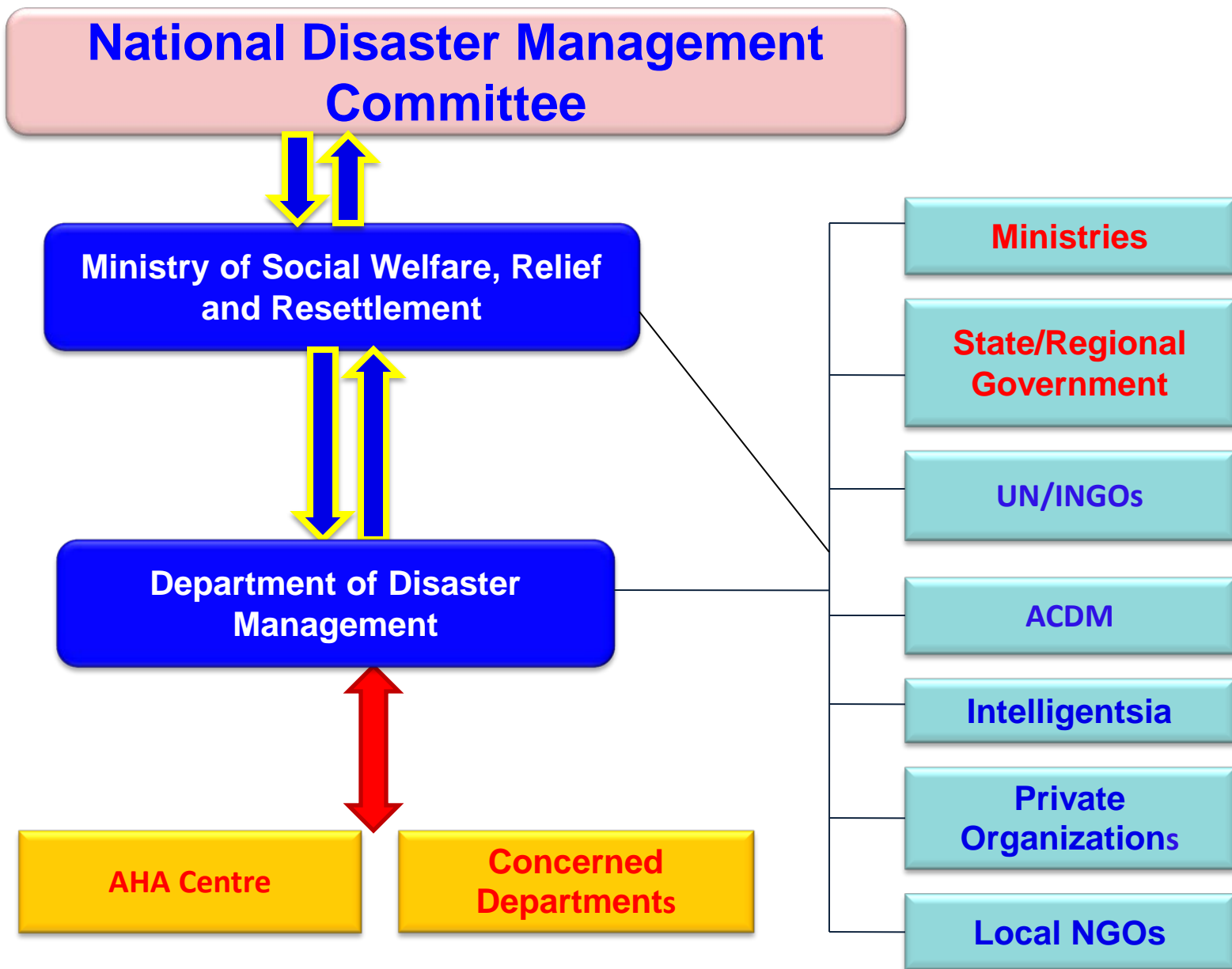
Cont'd

16	Union Minister for Commerce	Member
17	Union Minister for Education	Member
18	Union Minister for Health and Sports	Member
19	Union Minister for Planning and Finance	Member
20	Union Minister for Construction	Member
21	Union Minister for Hotel and Tourism	Member
22	Union Minister for Ethnic Affairs	Member
23	Chief Ministers (All States and Regions)	Member
24	Deputy Minister for Foreign Affairs	Member
25	Chief of Staff (Army)	Member
26	Chief of Staff (Navy)	Member
27	Chief of Staff (Air)	Member
28	Permanent Secretary for Social Welfare, Relief and Resettlement	Secretary
29	Director General of General Administration Department	Joint Secretary

Formation of National Disaster Management Work Committee

1. Union Minister for Social Welfare, Relief and Resettlement
Chairman
2. Deputy Minister for Home Affairs
Chair Vice
3. Union Minister for Border Affairs
Member
4. Permanent Secretary for Defense
Member
5. Permanent Secretary for Border Affairs
Member
6. Permanent Secretary for Agriculture, Livestock and Irrigation
Member
7. Permanent Secretary for Transport and Communication
Member
8. Permanent Secretary for Commerce
Member
9. Permanent Secretary for Social Welfare, Relief and Resettlement
Member
10. Permanent Secretary for Planning and Finance
Member

Coordination, Cooperation and Communication System for Disaster Management



Early Warning Dissemination Flow



Organization Chart for the Ministry of Social Welfare, Relief and Resettlement

National Disaster Management Committee

(During Disaster Emergency)

Disaster Management Center

Ministry of Social Welfare, Relief and Resettlement (Secretariat Office of NDMC)

Department of Social Welfare

Department of Disaster Management

Department of Rehabilitation

Admin and Finance

Relief

Disaster Risk Reduction

Coordination and Research

State/ Region/ District Offices

Disaster Management Training Center

Procurement

Emergency Operations Center

Remote Sensing and GIS Section

Risk Assessment and Emergency Response Section

Coordination Section

Information Management Section

EOC's Activities in Disaster Management

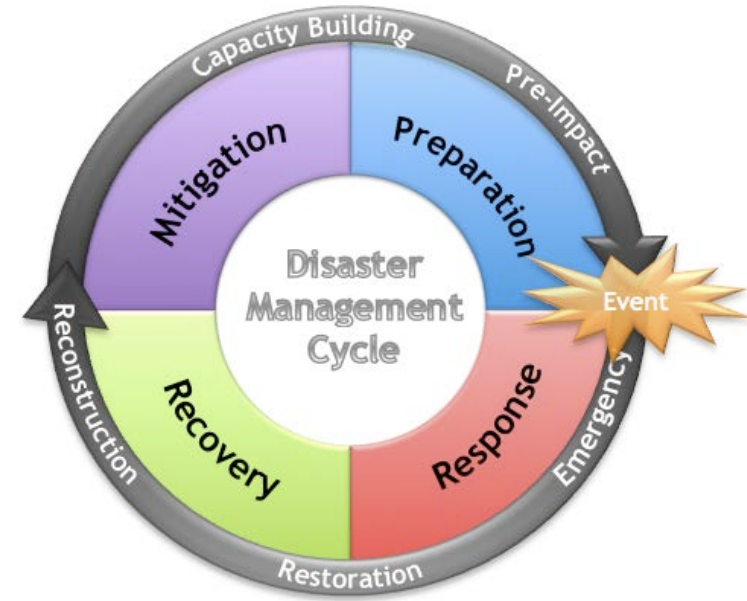
- **Preparedness, Mitigation & Prevention**

EOC does disaster monitoring.

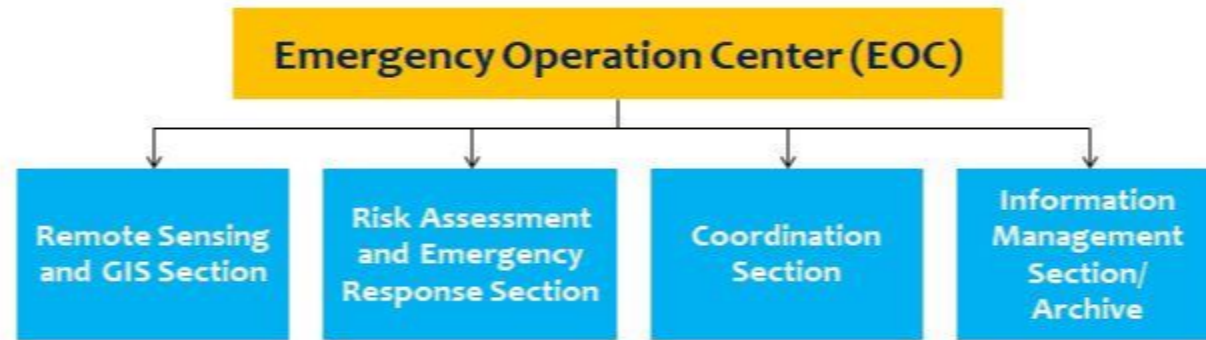
- **Response, Recovery**

Early warning dissemination

(collaboration with DMH & GAD)



Roles of Emergency Operation Center (EOC)



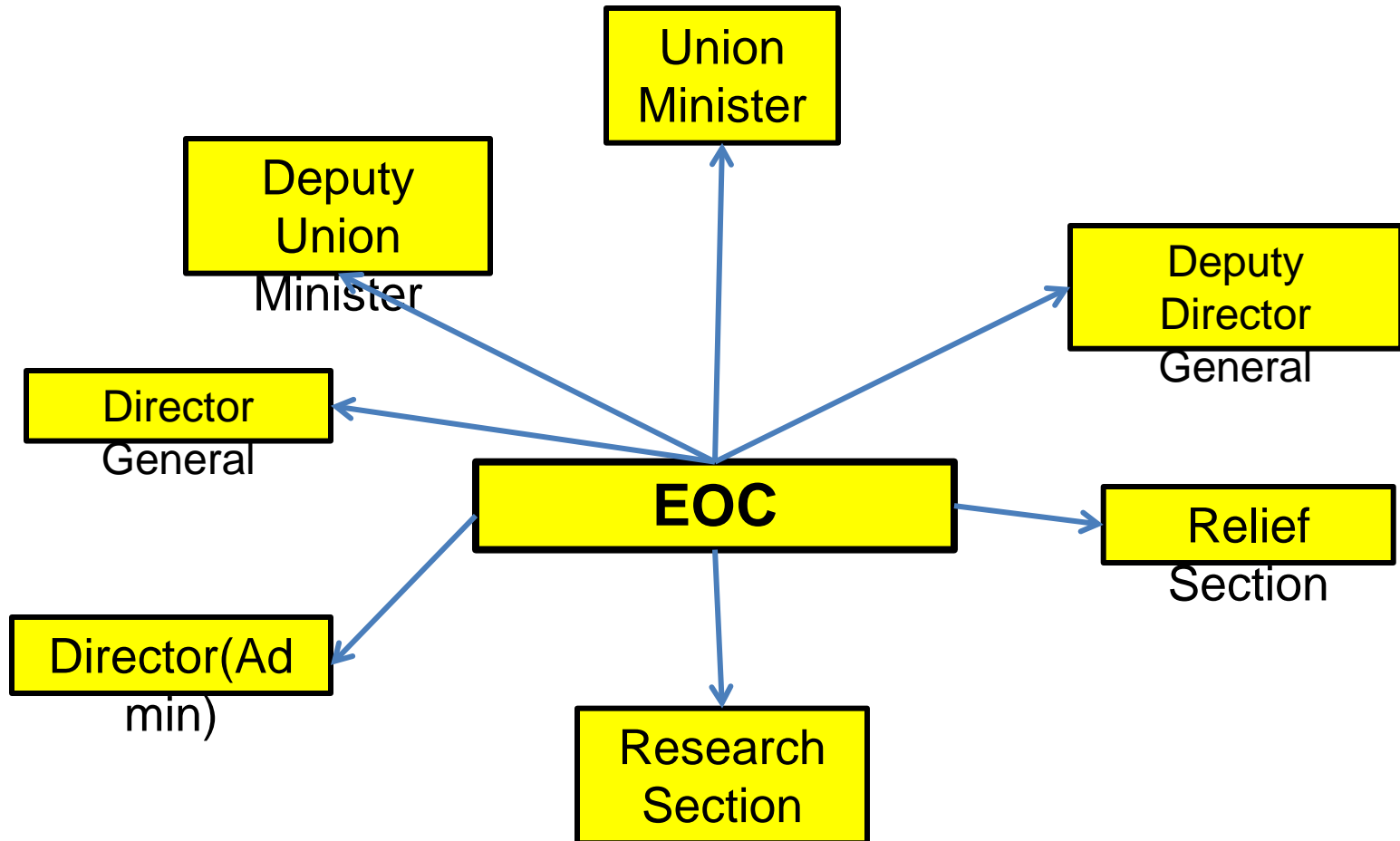
In normal time,

- EOC runs for disaster preparedness, information management and coordination for disaster risk reduction.

In case of Emergency Situation, EOC

- provides the comprehensive solution to the decision makers by collecting necessary data and information for effective response
- supports for emergency management, response and logistic through information sharing on network and quick decision making.

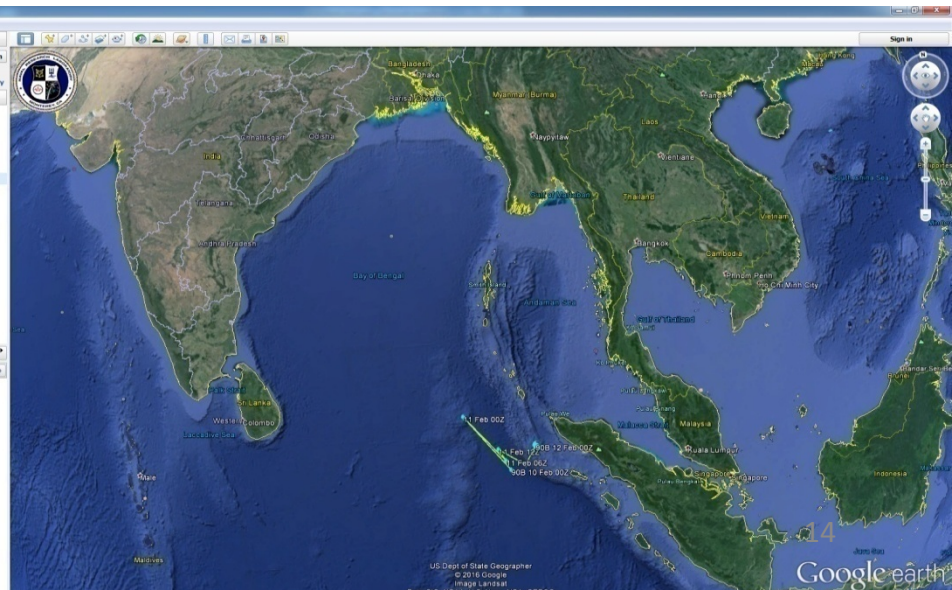
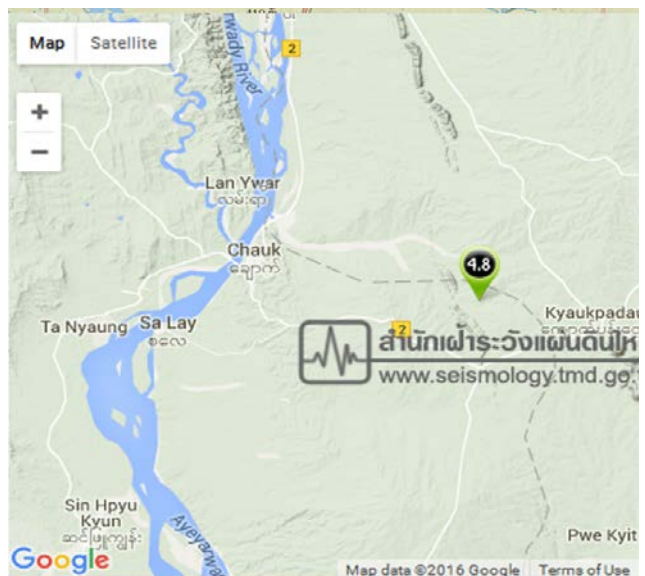
EOC Disseminates Weather and Disaster Information to Relevant Sections under Department



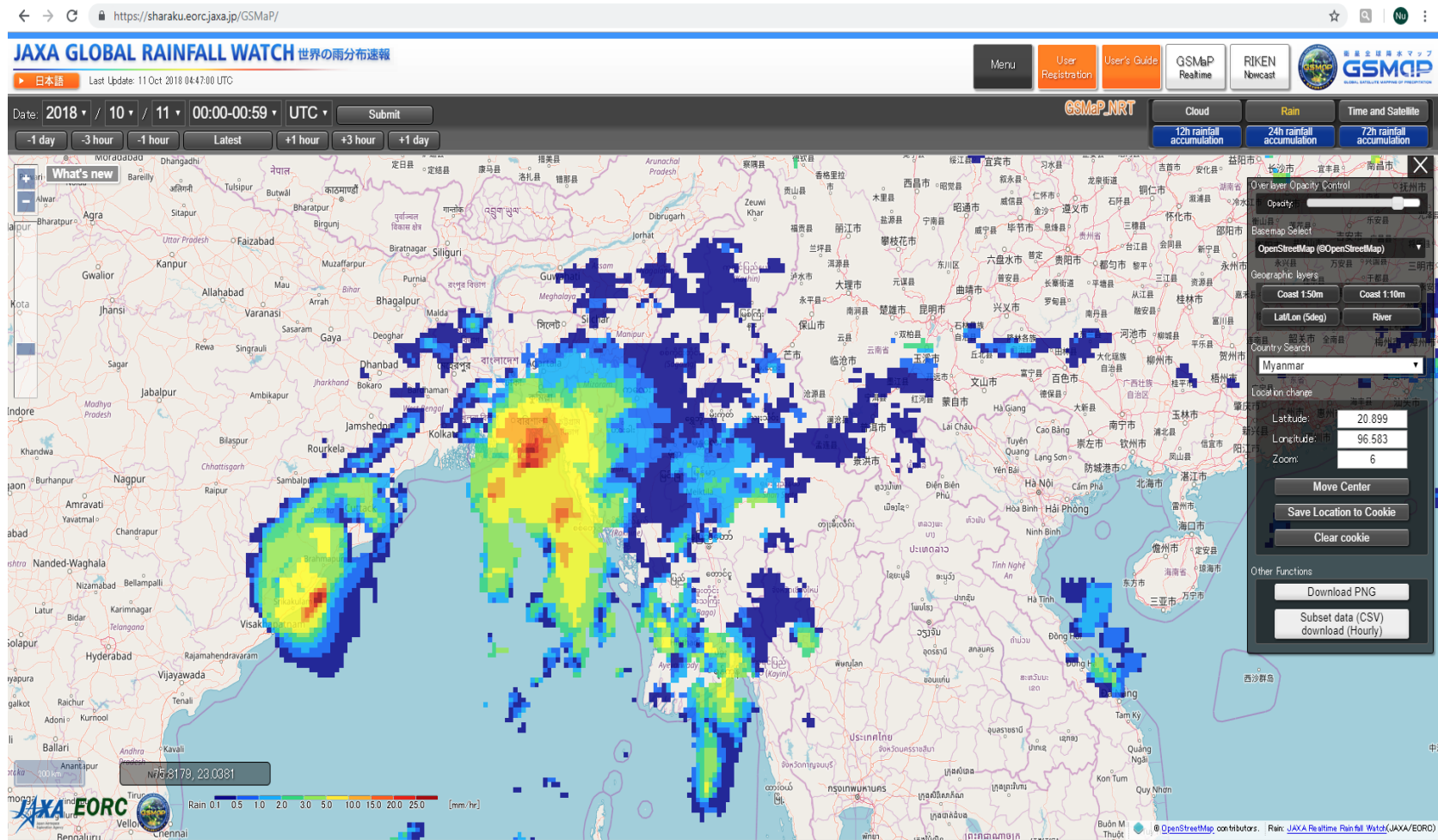
Roles of Emergency Operation Center (EOC)



- Monitoring the Weather Outlooks and Disaster Potentials
- Performing the data and information collection, data acquisition, data analysis, and information sharing and dissemination



Roles of Emergency Operation Center (EOC)



Disaster Monitoring and Situation Analysis

Perform Situation Analysis for the decision makers by referencing the Satellite Precipitation Information and applying the Forecasted Information by means of Ground Observation by the National Meteorological Agency (DMH). (Website link: <https://sharaku.eorc.jaxa.jp/GSMaP/>)

Roles of Emergency Operation Center (EOC)

Disaster Monitoring and Situation Analysis

Interactive communication with the AHA Center to monitor the disaster situation.



Cooperation between EOC (DDM) and Department of Meteorology and Hydrology (DMH)

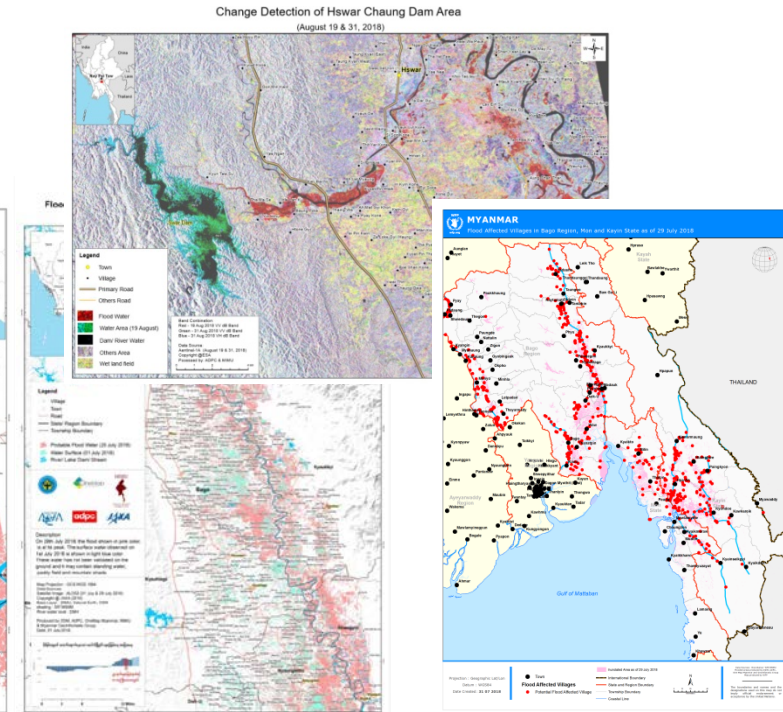
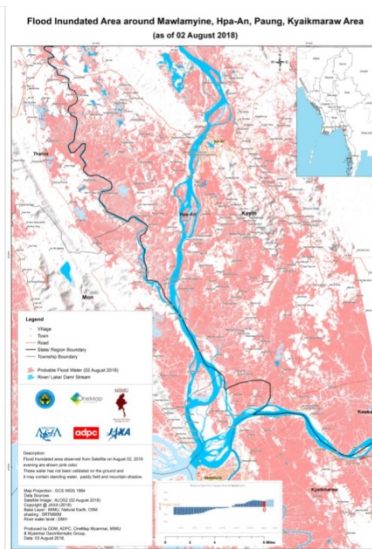
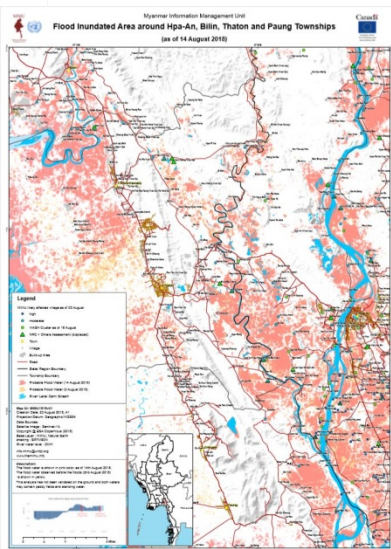
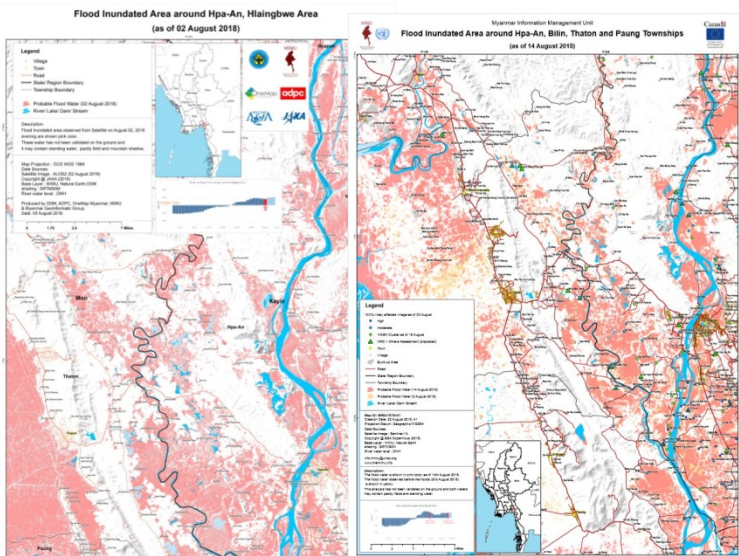


- For early warning dissemination, EOC receives **daily weather forecast and hydrological forecast from DMH** via fax, phone, email, Facebook/ social media, website and Single Side Band (SSB)/(radio communications).
- In emergency situations, EOC and DMH make **daily briefings**.
- In the rainy season, EOC and DMH make briefings **once a week**.



Cooperation with other organizations

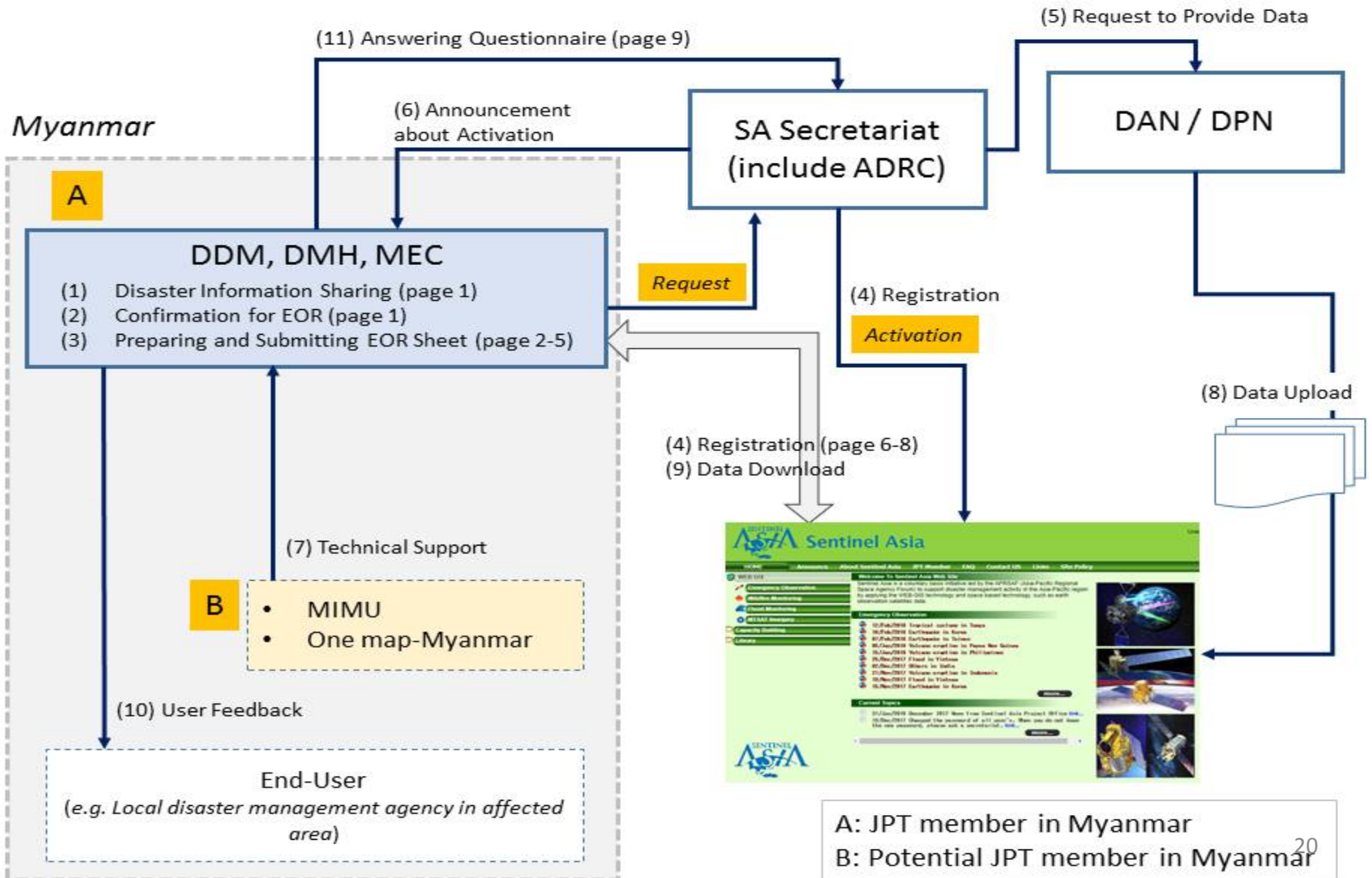
- By using satellite-based information on the disaster affected area, emergency search and rescue, response and relief transportation map is made.
- Such activities are conducted by EOC in cooperation with Myanmar Information Management Unit (MIMU), adpc, SERVIR-Mekhong, WFP.



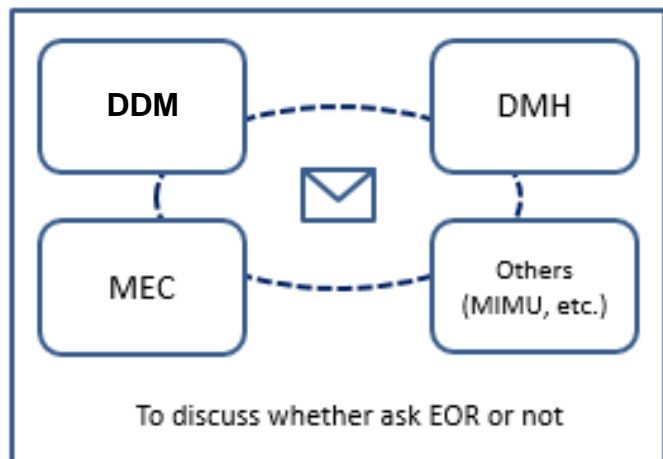
International Charter




- DDM applied the Authorized User of International Charter for Space and Major Disasters. (Started on Apr 2017)
- Charter Training was conducted on Jun 30 2017 (Web Conference Training).
- Charter Activation Simulation Exercise was convened on 26 July 2017.
- Project Manager Training was held on 19 September 2017 at our EOC with the partnership of the Satellite Base and Geo Informatics members.
- DDM became the authorized user legally on February 2018.



Emergency Observation Request (EOR)



User Request Form (Affected area information)


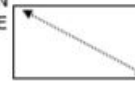
<i>To be filled by ODO</i> Call ID [REDACTED]	
1. Date and time of the call	DAY 23 MONTH (Spell) July YEAR 2017 LOCAL TIME 09:45 am UTC TIME 03:15 UTC
2.a Name and contact information of the caller (organisation submitting this request) Name of the organisation: Relief and Resettlement Department Contact: Ms. Su Nandar Myint Phone: 9567404540 Mobile phone: 959450539272 Fax: +95 67 404541 E-mail: [REDACTED]	
2.b Request submitted on behalf of (IF APPLICABLE) Name of the organisation: [REDACTED] Contact: [REDACTED] Phone: [REDACTED] Mobile phone: [REDACTED] Fax: [REDACTED] E-mail: [REDACTED]	
3. Type of disaster <input type="checkbox"/> Earthquake <input type="checkbox"/> Flood <input type="checkbox"/> Landslide <input type="checkbox"/> Oil spill <input type="checkbox"/> Sea ice <input type="checkbox"/> Snow hazard <input type="checkbox"/> Storm / hurricane <input type="checkbox"/> Tsunami <input checked="" type="checkbox"/> Volcanic eruptions <input type="checkbox"/> Wildfire <input type="checkbox"/> Other (e.g. wind storm, tornado, industrial accident...) specify: [REDACTED]	
4. Geographical location	5. Geographical Coordinates in Degrees, minutes, seconds
Region/country name: Indonesia	a) Center Point(s) in priority order CP1 Lat 7° 54' [REDACTED] S Long 110° 44' 6" E Radius (km) 100
Geographical location From [REDACTED] To [REDACTED]	CP2 Lat [REDACTED] N/S Long [REDACTED] E/W Radius (km) [REDACTED]
Extent (km ²) 100	CP3 Lat [REDACTED] N/S Long [REDACTED] E/W Radius (km) [REDACTED]
	b) Upper left Lat 7° 29' 18" S Long 110° 22' 20" E  Lower right Lat 7° 37' 12" S Long 110° 32' 16" E Please include any additional information on a separate page.
6. Approximate date/time of occurrence or predicted occurrence 25.7.2017	
7. Additional information on the disaster Mount Merapi has shown indication of a possible eruption.	
8. Additional instructions (list of End Users and specific users needs in terms of damage detection if any)	
	1) Need to monitor the summit for signs of change. 2) Need to monitor ash clouds for locations of possible water contamination sites. 3) Need to monitor lava flow upon eruption. Optical Satellite Image
<i>To be filled by ODO</i> Authorized User <input checked="" type="checkbox"/> Other <input type="checkbox"/>	

EOR Form from Annual Flood in Myanmar which occurred in July 2018

Version20180116

Version20180116

SENTINEL ASIA EMERGENCY OBSERVATION REQUEST (EOR) FORM (1/2)	
Requester (your name and organization)	
Your name	Ms. THIRI MAUNG
Your organization	Department of Disaster Management
	Membership: <input checked="" type="checkbox"/> JPT member <input checked="" type="checkbox"/> ADRC member
Your phone	+95 67 3404540
Your cellular phone	+95 9 5122136
Your fax	+95 67 3404541
Your E-mail	thirimaung.rrd@gmail.com
Other E-mail(s) for notification	myanmareoc.rrd@gmail.com , khun.aung@adpc.net
Contact Person	
※Fill in below in case different from the Requester	
Name	
Organization	
Phone	
Cellular phone	
E-mail	
Other E-mail(s) for notification	
Disaster Management Organization	
ADRC is the first point of contact in the Sentinel Asia EOR process. Local information by Disaster Management Organizations (DMOs) is quite essential to undertake the first evaluation of an EOR and judges the Sentinel Asia framework is suitable to assist. To proceed the EOR process, ADRC may contact with DMOs. Please provide following information.	
Organization Name	Department of Disaster Management
E-mail	myanmareoc.rrd@gmail.com
Other relevant information	
Planned end-user of the observed information	
Please provide us information, to the best of your knowledge, as to which organization (e.g. Disaster Management Organization), agency, or community will utilize the satellite image. ADRC may ask some questions to concerned organization, if needed.	
<input checked="" type="checkbox"/> The information/image shall be used only for our organization	
Please state your role in the organization during disaster response (monitoring the situation for the effective response measures and alert to the potential area to be worsen)	
<input checked="" type="checkbox"/> The information will be provided to other relevant organization/s.	
Please fill in the name of the organization (Local Administrative Organization and Local Disaster Management Committee)	
Purpose of the Request	
How does your organization intend to use the satellite data?	
<input type="checkbox"/> Emergency Response	
<input checked="" type="checkbox"/> Situation confirmation, <input checked="" type="checkbox"/> Rescue activity, <input type="checkbox"/> Evacuation activity,	
<input type="checkbox"/> Others()	
<input checked="" type="checkbox"/> Damage and Loss Assessment(DaLA)/Post Disaster Needs Assessment(PDNA)	
<input checked="" type="checkbox"/> Recovery Planning	
<input checked="" type="checkbox"/> Detection of an advance warning of hazardous situation	
<input type="checkbox"/> Others()	
Type of Disaster	
<input checked="" type="checkbox"/> Flood <input type="checkbox"/> Flash Flood <input type="checkbox"/> Landslide <input type="checkbox"/> Storm <input type="checkbox"/> Forest fire <input type="checkbox"/> Volcano <input type="checkbox"/> Earthquake	
<input type="checkbox"/> Ice Hazard <input type="checkbox"/> Tsunami <input type="checkbox"/> Oil Spill <input type="checkbox"/> Others()	

Analysis requirement for damages		
<input type="checkbox"/> Building Damage <input type="checkbox"/> Infra. Damage <input type="checkbox"/> Lahar		
<input checked="" type="checkbox"/> Others(Flood Affect area , Agricultural damage area.)		
Request for Data Analysis Node (DAN) (Multiple Choice Allowed)		
<input type="checkbox"/> Ourselves <input checked="" type="checkbox"/> DANs in own country <input type="checkbox"/> P-DAN <input type="checkbox"/> OTHERS () <input type="checkbox"/> No request		
SENTINEL ASIA EMERGENCY OBSERVATION REQUEST (EOR) FORM (2/2)		
Time limit for information to be uploaded on the SA WEB-portal (from date of SA activation)		
<input type="checkbox"/> Less than 24 hours <input checked="" type="checkbox"/> Not exceed 4 days <input type="checkbox"/> Not exceed 10 days <input type="checkbox"/> Others:		
※Based on the expected time limit, there might be cases where the delivery of information will be difficult to meet or the product to be delivered is assessed to be not enough at a given time. In such cases, we may not trigger Sentinel Asia.		
Date of Occurrence		
Date and time(UTC)	26 July 2018 till today (28 July 2018) and still happening	
Details, news source		
https://www.bbc.com/news/world-asia-44962585		
Place of occurrence		
Country	Myanmar, Bago Region, Mon State, Kayin State,	
Request area		
Name of a place		
Please select one (if there are some AOIs, add AOI in order of priority.)	<input type="checkbox"/> Circular zone	Coordinates of centre point  Latitude : " N Longitude: " E Radius : km
	<input type="checkbox"/> Rectangular zone	Coordinates of corners  Lat. : " N Lon.: " E Lat. : " N Lon.: " E
Necessity for Additional Observation		
<input type="checkbox"/> Necessary <input type="checkbox"/> Not necessary <input checked="" type="checkbox"/> Don't know		
The requesting organization (RO) may further ask whether to escalate this EOR to International Charter for Space and Major Disasters (ICD) when secretariat confirms its appropriateness.		
If RO wishes to escalate to ICD, please check the box on the right.		
<table border="1"> <tr> <td>Escalate</td> </tr> </table>		Escalate
Escalate		

Please send the completed form to ADRC
(Fax) +81-78-262-5546 or (E-mail) sarequest@adrc.asia


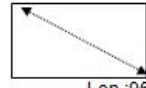
Request ID
(To be filled by ADRC)

EOR Form from Swar Irrigation Dam Breach which overflow in 29 August 2018

Version20180116

SENTINEL ASIA EMERGENCY OBSERVATION REQUEST (EOR) FORM (1/2)	
Requester (your name and organization)	
Your name	Daw Thiri Maung
Your organization	Department of Disaster Management
	Membership: <input type="checkbox"/> JPT member <input checked="" type="checkbox"/> ADRC member
Your phone	+9567404540
Your cellular phone	+9595122136
Your fax	+9567404541
Your E-mail	thirimaung.r.d@gmail.com
Other E-mail(s) for notification	myanmareoc.r.d@gmail.com
Contact Person	
※ Fill in below in case different from the Requester	
Name	
Organization	
Phone	
Cellular phone	
E-mail	
Other E-mail(s) for notification	
Disaster Management Organization	
ADRC is the first point of contact in the Sentinel Asia EOR process. Local information by Disaster Management Organizations (DMOs) is quite essential to undertake the first evaluation of an EOR and judges the Sentinel Asia framework is suitable to assist. To proceed the EOR process, ADRC may contact with DMOs. Please provide following information.	
Organization Name	Department of Disaster Management
E-mail	myanmareoc.r.d@gmail.com
Other relevant information	
Planned end-user of the observed information	
Please provide us information, to the best of your knowledge, as to which organization (e.g. Disaster Management Organization), agency, or community will utilize the satellite image. ADRC may ask some questions to concerned organization, if needed.	
<input checked="" type="checkbox"/> The information/image shall be used only for our organization	
Please state your role in the organization during disaster response (monitoring and warning)	
<input checked="" type="checkbox"/> The information will be provided to other relevant organization/s.	
Please fill in the name of the organization ()	
Purpose of the Request	
How does your organization intend to use the satellite data?	
<input type="checkbox"/> Emergency Response	
<input checked="" type="checkbox"/> Situation confirmation, <input type="checkbox"/> Rescue activity, <input checked="" type="checkbox"/> Evacuation activity,	
<input type="checkbox"/> Others ()	
<input checked="" type="checkbox"/> Damage and Loss Assessment (DaLA) / Post Disaster Needs Assessment (PDNA)	
<input type="checkbox"/> Recovery Planning	
<input checked="" type="checkbox"/> Detection of an advance warning of hazardous situation	
<input type="checkbox"/> Others ()	
Type of Disaster	
<input checked="" type="checkbox"/> Flood <input type="checkbox"/> Flash Flood <input type="checkbox"/> Landslide <input type="checkbox"/> Storm <input type="checkbox"/> Forest fire <input type="checkbox"/> Volcano <input type="checkbox"/> Earthquake	
<input type="checkbox"/> Ice Hazard <input type="checkbox"/> Tsunami <input type="checkbox"/> Oil Spill <input checked="" type="checkbox"/> Others (Water Spill from Swar Dam)	

Version20180116

Analysis requirement for damages	
<input type="checkbox"/> Building Damage <input type="checkbox"/> Infra. Damage <input type="checkbox"/> Lahar	
<input type="checkbox"/> Others ()	
Request for Data Analysis Node (DAN) (Multiple Choice Allowed)	
<input type="checkbox"/> Ourselves <input type="checkbox"/> DANs in own country <input type="checkbox"/> P-DAN <input type="checkbox"/> OTHERS () <input type="checkbox"/> No request	
Time limit for information to be uploaded on the SA WEB-portal (from date of SA activation)	
<input type="checkbox"/> Less than 24 hours <input type="checkbox"/> Not exceed 4 days <input type="checkbox"/> Not exceed 10 days <input type="checkbox"/> Others:	
※ Based on the expected time limit, there might be cases where the delivery of information will be difficult to meet or the product to be delivered is assessed to be not enough at a given time. In such cases, we may not trigger Sentinel Asia.	
Date of Occurrence	
Date and time (UTC)	29 August 2018
Details, news source	
Water spill from Swar Irrigation Dam and this spillway head is little broken.	
Rain has caused a dam to overflow, inundating the nearby the township and Yangon-Mandalay Highway Road.	
Place of occurrence	
Country	Myanmar
Request area	
Name of a place	Swar Dam Spill water, From Yedashe township to Madauk township, Bago Division
Please select one (If there are some AOIs, add AOI in order of priority.)	<input type="checkbox"/> Circular zone
	<input checked="" type="checkbox"/> Rectangular zone
Coordinates of centre point	
 Latitude: ° ' " N Longitude: ° ' " E Radius : km	
Coordinates of corners	
 Lat.: 19° 17' 15.2" N Lon.: 96° 7' 36" E Lat.: 17° 34' 15.01" N Lon.: 96° 59' 36.90" E	
Necessity for Additional Observation	
<input type="checkbox"/> Necessary <input type="checkbox"/> Not necessary <input checked="" type="checkbox"/> Don't know	

The requesting organization (RO) may further ask whether to escalate this EOR to International Charter for Space and Major Disasters (ICD) when secretariat confirms its appropriateness. If RO wishes to escalate to ICD, please check the box on the right.

Escalate
<input type="checkbox"/>

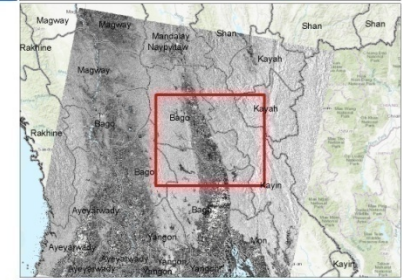
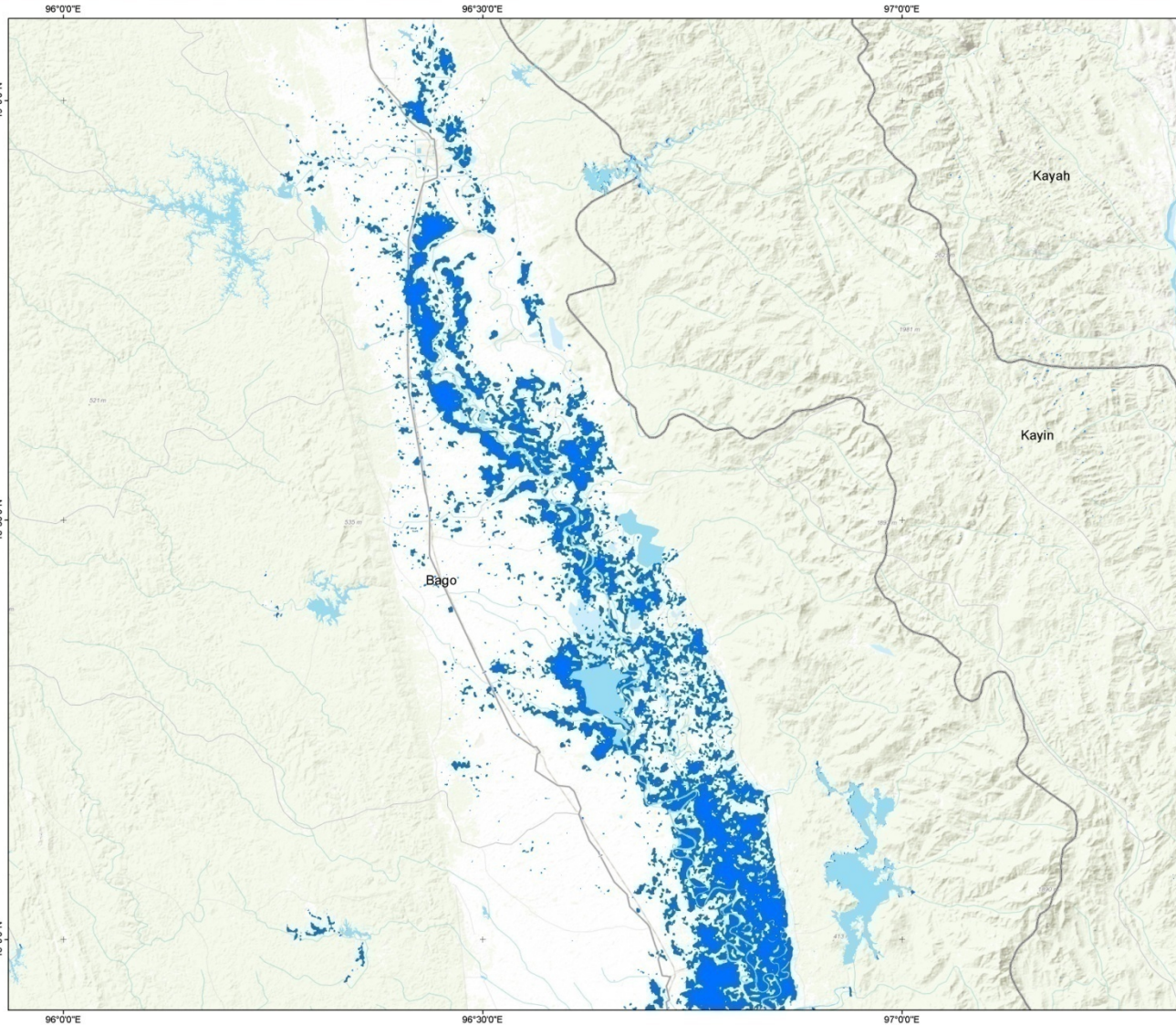
Please send the completed form to ADRC
(Fax) +81-78-262-5546 or (E-mail) sarequest@adrc.asia

Request ID (To be filled by ADRC)	
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Flooding Map from Bago Division, Myanmar by GIC/AIT

FLOODING IN BAGO DIVISION, MYANMAR

As observed by ALOS-2 image on 29 July 2018



Map Information

0 8 16 24 32

Kilometers

MAP SCALE 1:250,000 at A1 PRINT

Coordinate System: GCS WGS 84

Datum: D WGS 84

Unit: Degree

Legend

- Province Boundary
- Waterbody
- Flood Proxy Map

Data Sources

Satellite image:
Pre-disaster : ALOS-2, 1 July 2018
Post-disaster : ALOS-2, 29 July 2018
Copyright : © JAXA (2018) - All rights reserved.

GIS data:
River, Water bodies © OSM 2018
Administrative boundary © GADM

Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO,

Description

This map shows possible massive flooding areas from heavy rain on 27 July 2018, which has affected Bago Division, Myanmar. Note that the detected-water may also include water in paddy area.

Map product made by GIC-AIT (v1.0).

Disclaimer: The accuracy of this product is not validated.

Data provider:



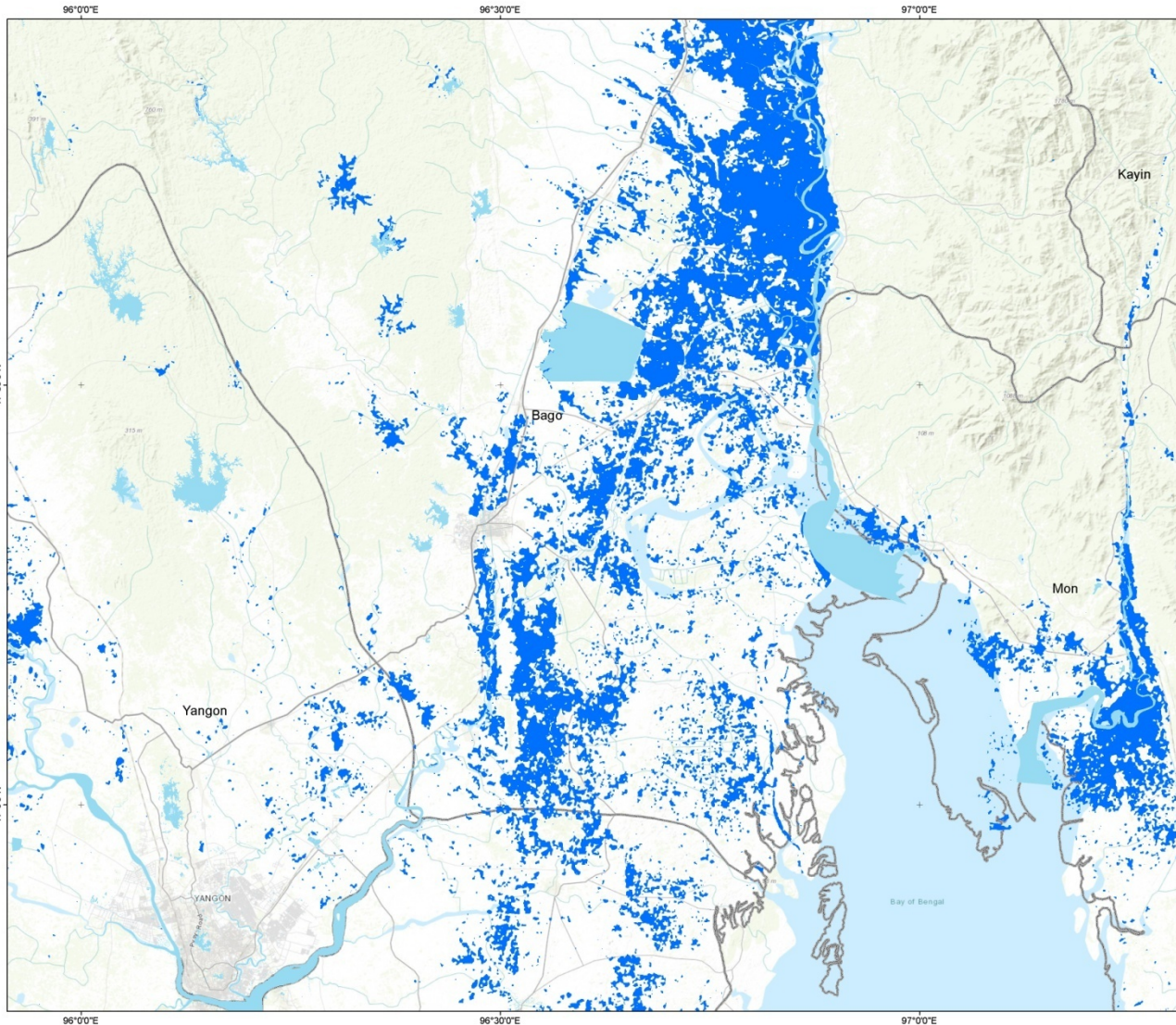
Flooding Map from Bago Division and Mon State, Myanmar by GIC/AIT

FLOODING IN BAGO AND MON DIVISION, MYANMAR

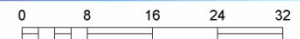
As observed by ALOS-2 image on 29 July 2018



Geoinformatics Center - AIT



Map Information



Kilometers

MAP SCALE 1:250,000 at A1 PRINT

Coordinate System: GCS WGS 84

Datum: D WGS 84

Unit: Degree

Legend

- Province Boundary
- Waterbody
- Flood Proxy Map

Data Sources

Satellite image:
Pre-disaster : ALOS-2, 1 July 2018
Post-disaster : ALOS-2, 29 July 2018
Copyright : © JAXA (2018) - All rights reserved.

GIS data:
River, Water bodies © OSM 2018
Administrative boundary © GADM

Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO,

Description

This map shows possible massive flooding areas from heavy rain on 27 July 2018, which has affected Bago and Mon Division, Myanmar. Note that the detected-water may also include water in paddy area.

Map product made by GIC-AIT (v1.0).

Disclaimer: The accuracy of this product is not validated.

Data provider:



Thank you for your
kind attention!