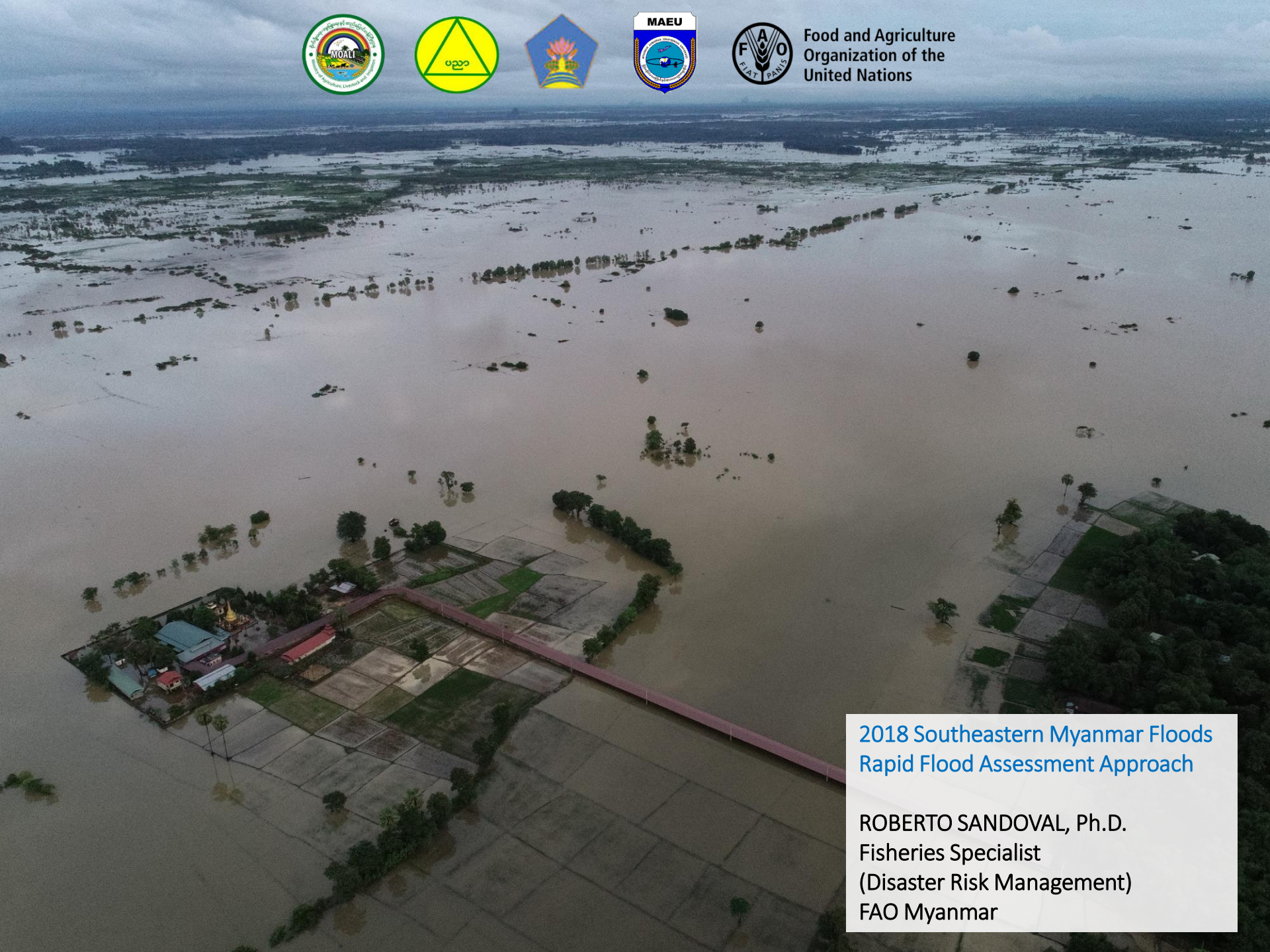




Food and Agriculture
Organization of the
United Nations



2018 Southeastern Myanmar Floods Rapid Flood Assessment Approach

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Fisheries Specialist
(Disaster Risk Management)
FAO Myanmar

Outline

I. Previous flood related mapping work

II. The 2018 Southeastern Myanmar Floods (rapid flood assessment approach)

EXPLORING THE APPLICATION OF DRONE MAPPING TECHNOLOGY IN MYANMAR – THE 2016 MYANMAR FLOODS

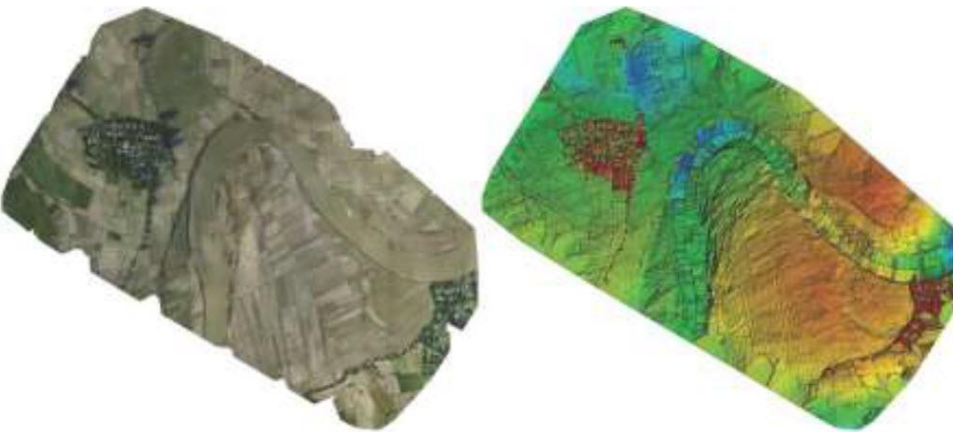
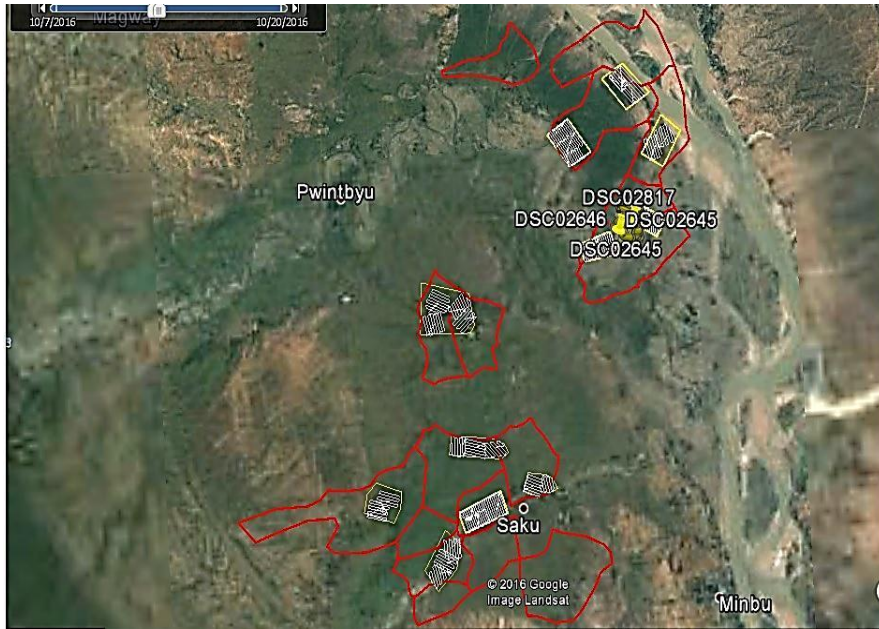
Rapid mapping missions were carried out to inform village assessments and profiling, as well as beneficiary identification (3,600 hectares with a ground resolution of up to 5 cm)

Mapping Sites were identified based on:

1. Standing Crop and Damage Reports from Department of Agriculture
2. Consultation with MOALI officials
3. Consultation with township and village officials
4. Safety/Logistics/Ease of Access



EXPLORING THE APPLICATION OF DRONE MAPPING TECHNOLOGY IN MYANMAR – THE 2016 MYANMAR FLOODS





FROM LOWLAND TO UPLANDS: DRONE MAPPING TECHNOLOGY IN HIGHLY REMOTE UPLAND AGRICULTURAL COMMUNITIES

Drone Mapping technology revolutionizes Community-based risk assessments and planning

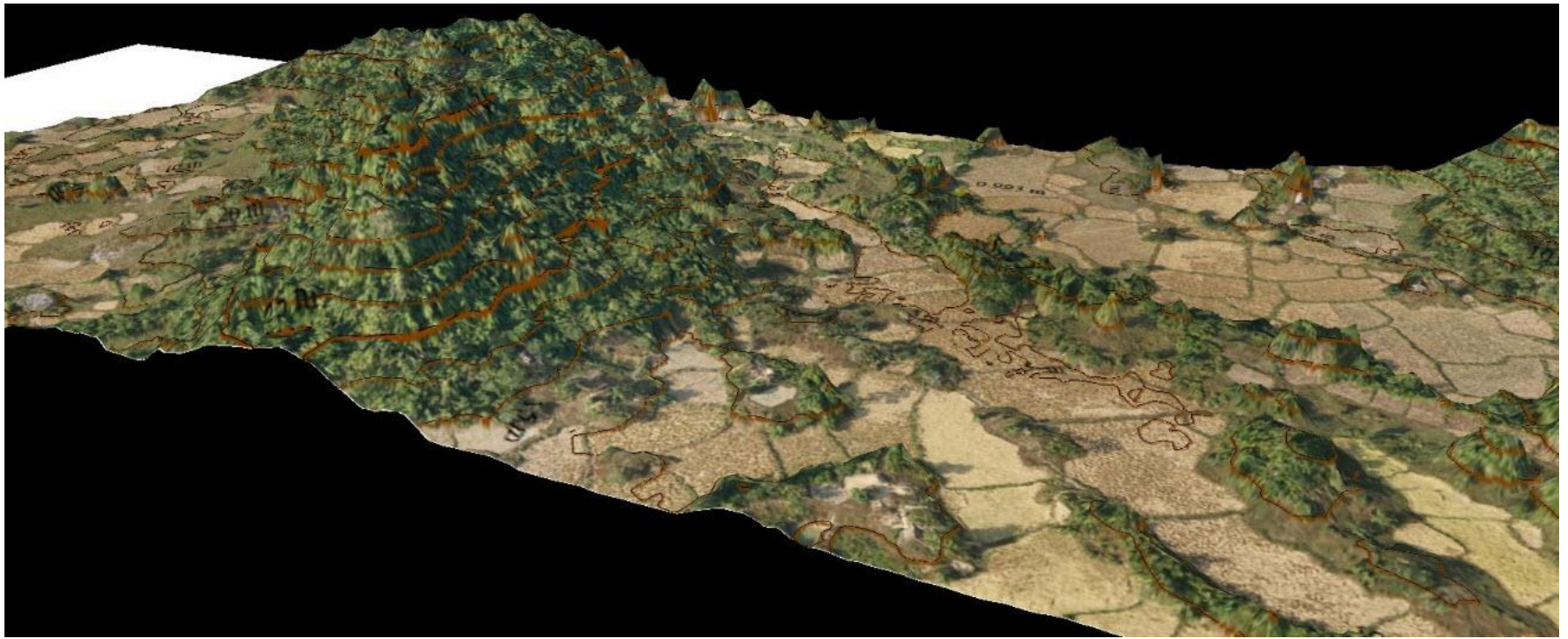
Hakha, Chin State

The maps allow community officials to examine aerial images with very high detail.

Enables increased appreciation of agriculture and environmental features, and better understanding of hazards and risks.

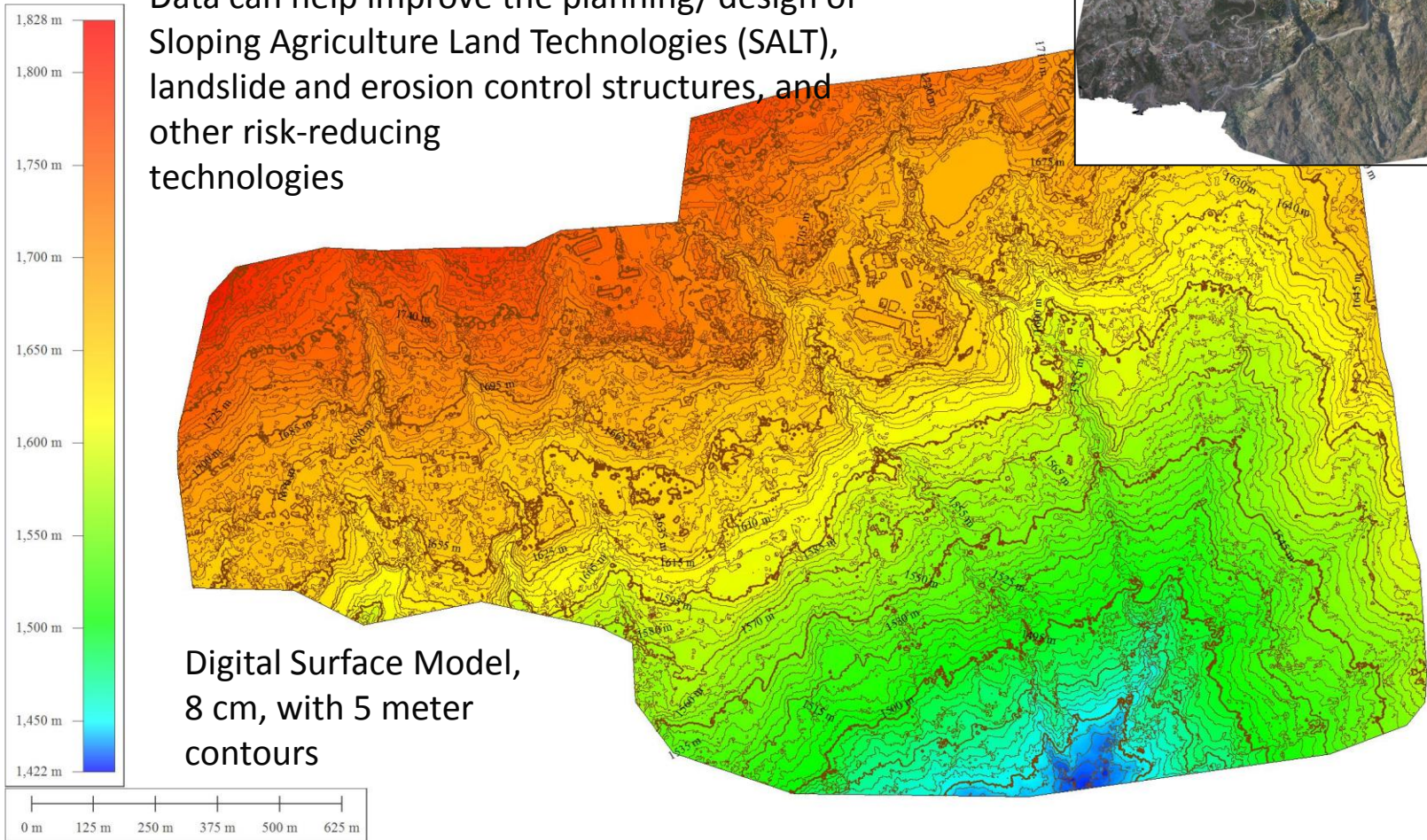
Build a case





Hakha, Chin State

Data can help improve the planning/ design of Sloping Agriculture Land Technologies (SALT), landslide and erosion control structures, and other risk-reducing technologies



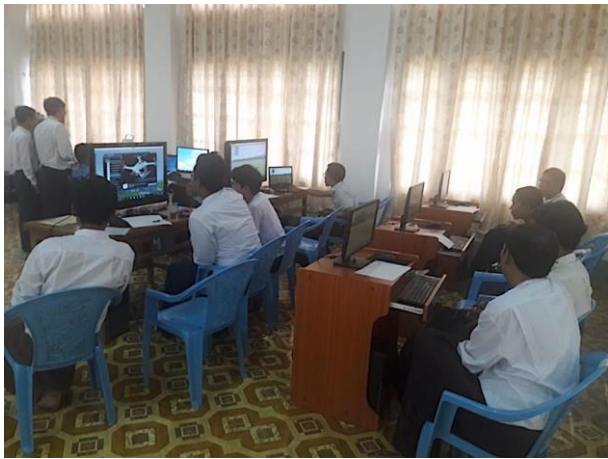
INSTITUTIONALIZING DRONE MAPPING TECHNOLOGY AND CAPACITIES FOR AGRICULTURE

Establishment of the MOALI DRR Task Force and Drone Mapping Team on 29 March 2017.

The drone mapping consists of 30 inter-disciplinary experts from the different Departments and universities across MoALI (Agriculture, Livestock, Extension, Research, Irrigation, Land Statistics, YAU, UVS, Mechanization, Cooperatives, Planning and others).

Formal launch of the MOALI Drone Mapping Team on August 2017





BEYOND AGRICULTURE: UTILIZING DRONE MAPPING TECHNOLOGY ACROSS SECTORS

THE 2017 MONSOON/CYCLONE SEASON

MOALI, MAEU and FAO carried out a collaborative mapping activity with the Relief and Resettlement Department (RRD), Ministry of Social Welfare, Relief and Resettlement in July 2017

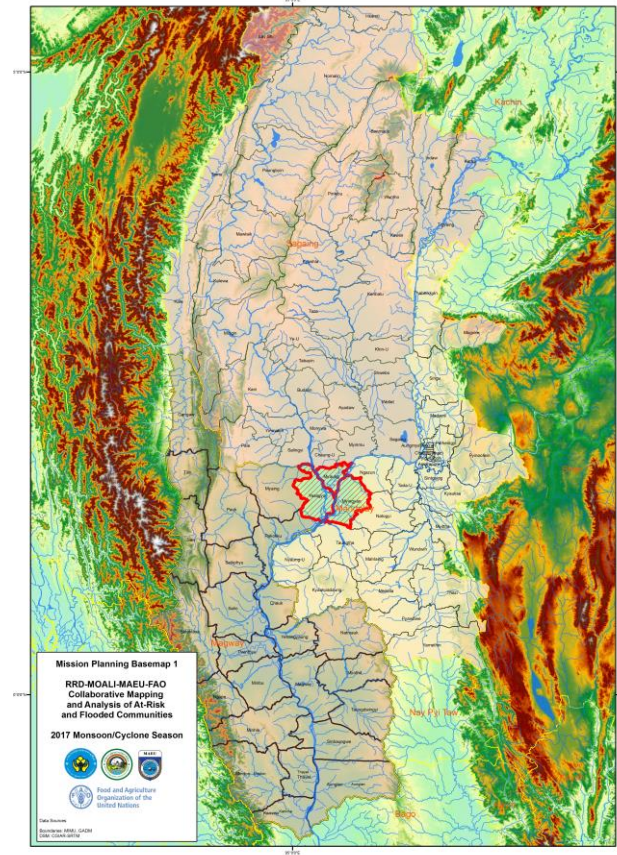
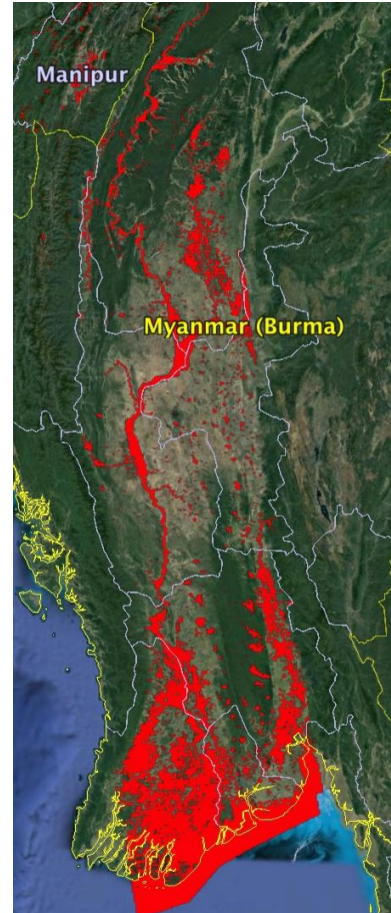
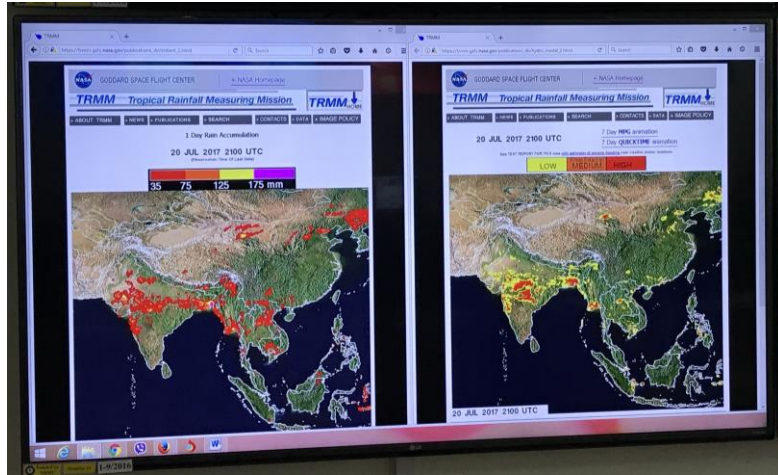
Produced aerial maps and conducted Real time Video Monitoring for Emergency Response and Resettlement in flooded areas in Pakuoku and Myintbu townships in Magway Region



Inter-agency Drone Mission Planning Workshop (MSWRR, MOALI, MAEU, Meteorology and Hydrology, FAO) at the National Emergency Operations Center

BEYOND AGRICULTURE: UTILIZING DRONE MAPPING TECHNOLOGY ACROSS SECTORS

THE 2017 MONSOON/CYCLONE SEASON



BEYOND AGRICULTURE: UTILIZING DRONE MAPPING TECHNOLOGY ACROSS SECTORS

THE 2017 MONSOON/CYCLONE SEASON



The 2018 Southeastern Myanmar Floods

Rapid Flood Assessment for Agriculture, Livestock and Fisheries/Aquaculture in Bago Region, Kayin State and Mon State

Data Gathering Activities

Ground Assessment: Focus Group Discussions, Key Informant Interviews, Review of Village Track level data. Representatives from different villages across a village track will be requested to participate in the FGDs and KIIs.

Sub-sectoral coverage: Crops, Livestock and Fisheries

Aerial Assessment: Mapping of village tracks using UAVs and scientifically reliable photogrammetric parameters including a minimum of 70% overlaps and up to 5cm resolution and ≤ 1 m geo-accuracy. Outputs: Orthomosaics will allow precise area measurements and detailed examination of village features. The Digital Surface/Elevation Models will be used to aid recovery planning.

Video-surveillance based on point-360 degree sampling approach (during bad weather)

Assessment Team:

FAO Experts (DRM, Crops, Livestock, Fisheries/Aquaculture, M&E) – Resilience Unit and FishAdapt Projects
MOALI Union level experts (ground and aerial assessment)
DDM Experts (for aerial assessment)
MAEU Experts

The 2018 Southeastern Myanmar Floods

Rapid Flood Assessment for Agriculture, Livestock and Fisheries/Aquaculture in Bago Region, Kayin State and Mon State

Township and Village Track Selection Criteria:

Flooding and damage reports from the Ministry of Agriculture, Livestock and Irrigation (MOALI) at township level cross referenced with flood reports from the Department of Disaster Management (DDM) and the international humanitarian community.

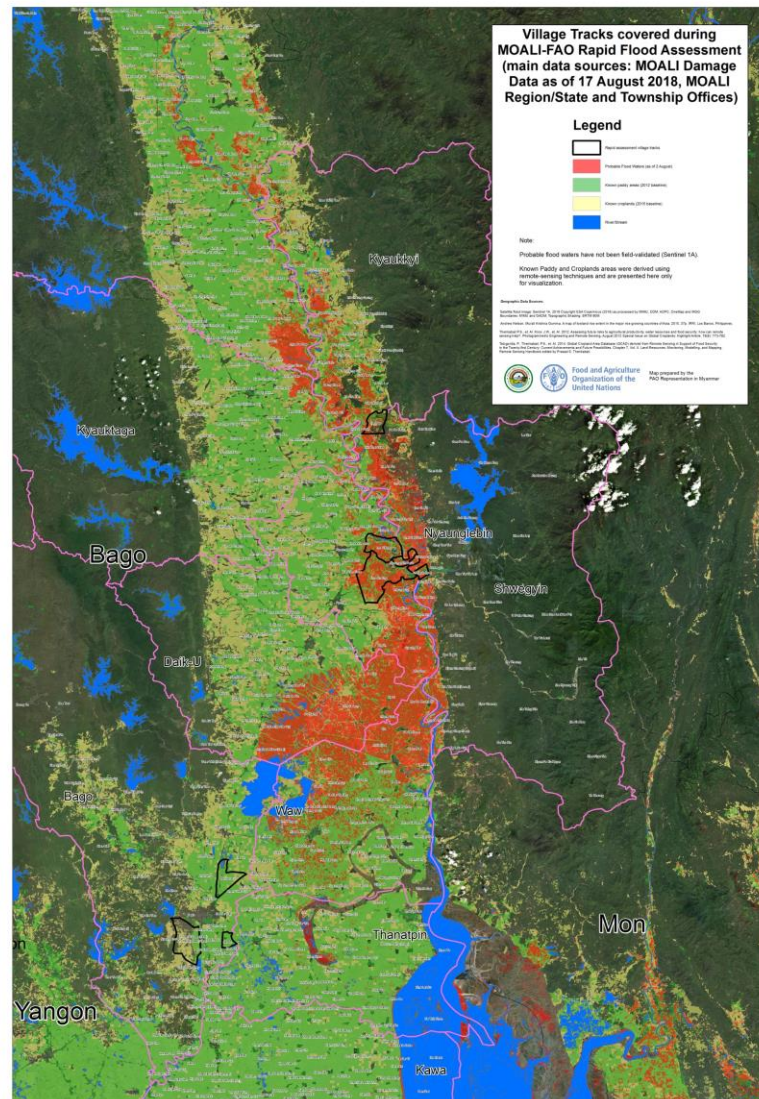
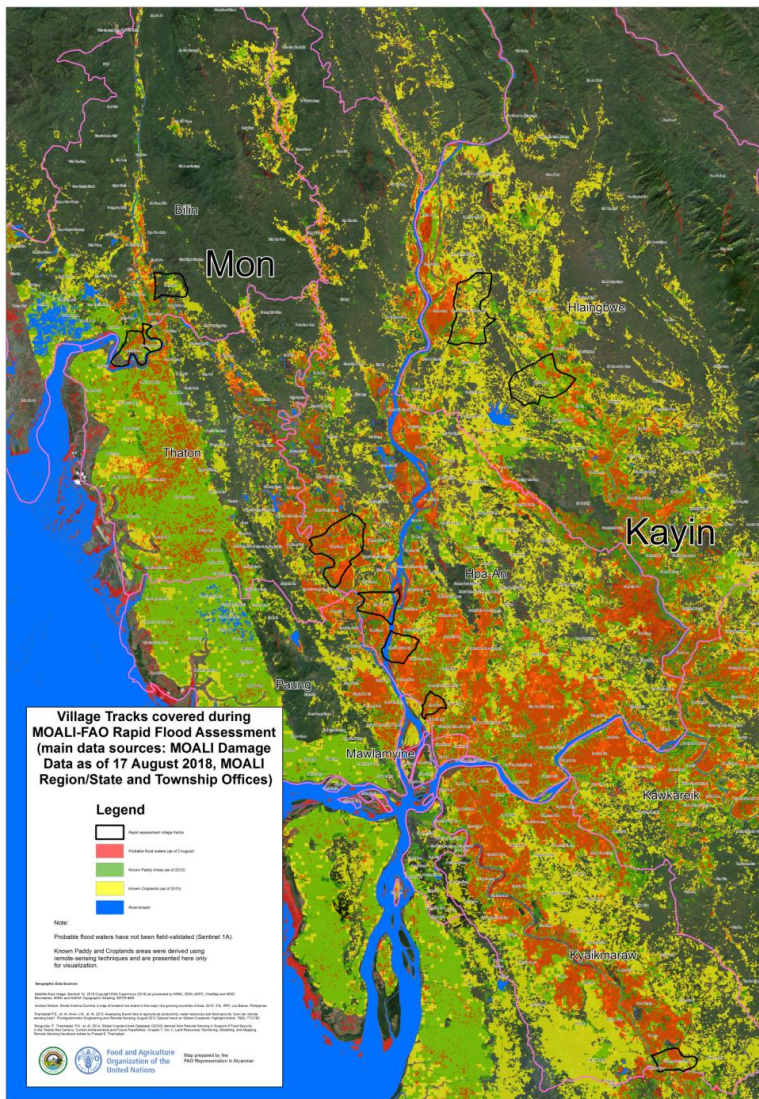
Additional validation was conducted through analysis of satellite-derived data sources including cross-sectional peak flood extent (Sentinel 1A dated 2 August), known lowland paddy areas (30m/pix resolution), and known agriculture croplands (30m/pix resolution) plus official cultivated area statistics.

Additional village track selection criteria:

Three layer overlay of flood extent, paddy areas, and agriculture croplands over village track boundary polygons; cultivated area statistics; relative size of the village track; proximity to flood sources; and representativeness potential to capture agro-ecological homogeneity across surrounding village tracks.

The 2018 Southeastern Myanmar Floods

Using a combination of conventional PRA tools such as FGDs and KIIIs with satellite and drone mapping data to enable more reliable rapid damage assessments and more effective flood response interventions.

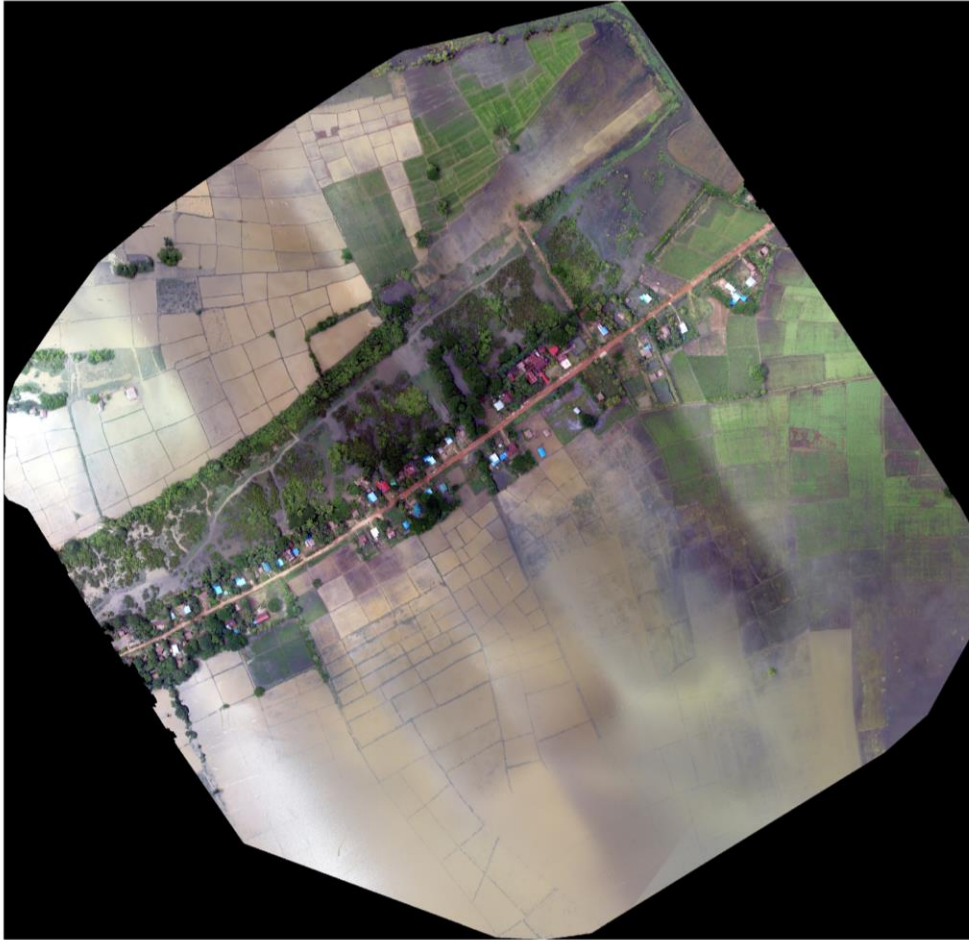
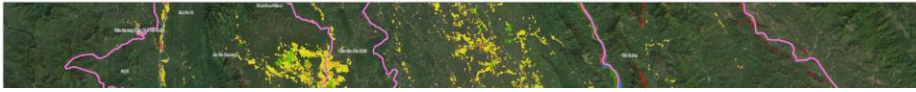


Typologies of flood occurrence observed

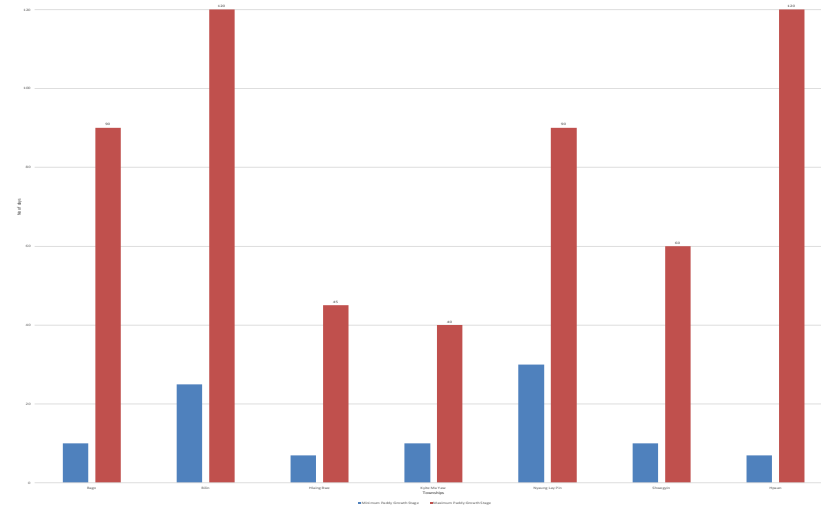
1. Single flash floods

2. Multiple flash floods

3. Prolonged submergence (more than 1 week)

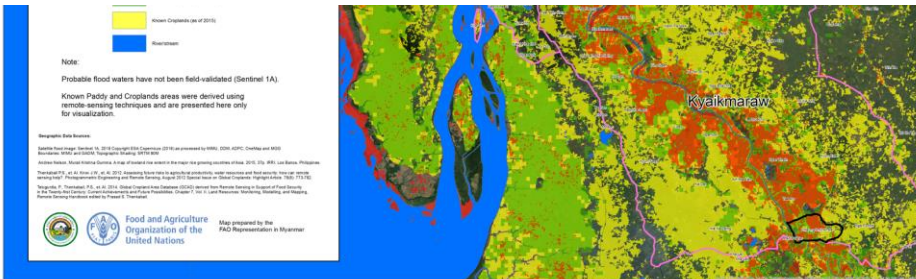


Max/Min Paddy growth stage



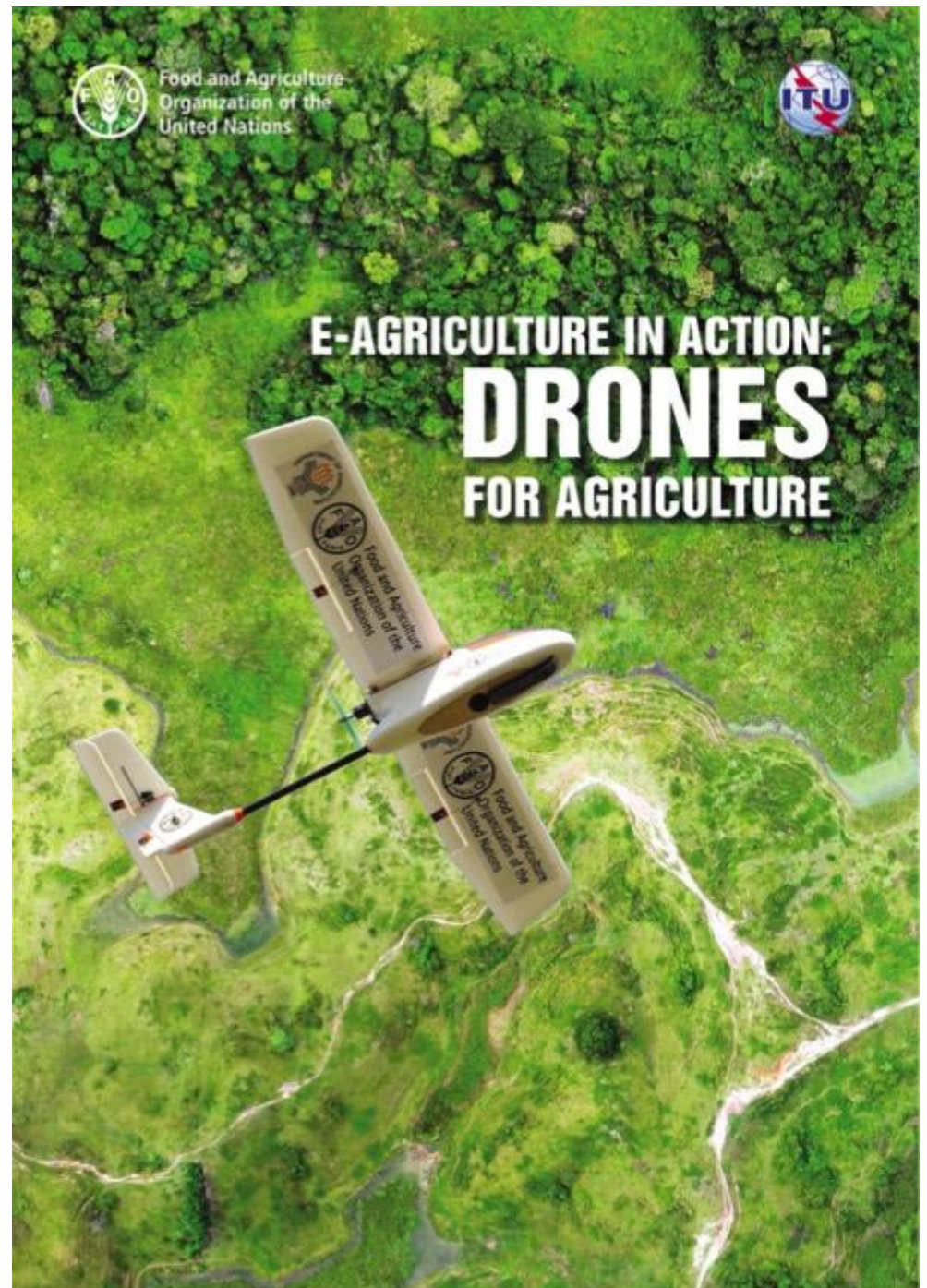
Rapid interviews/surveys provided basic but meaningful data analysis.

Thematic satellite overlays and drone maps revealed important spatial patterns and validated hazard impacts.

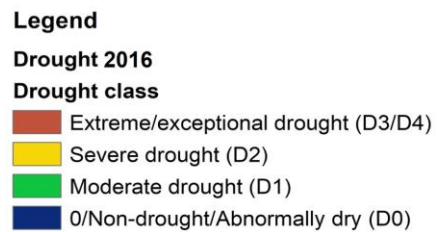
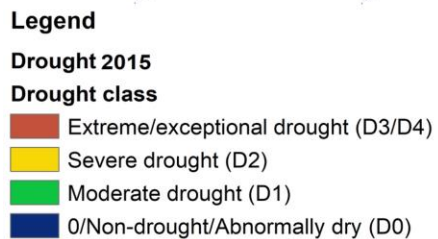
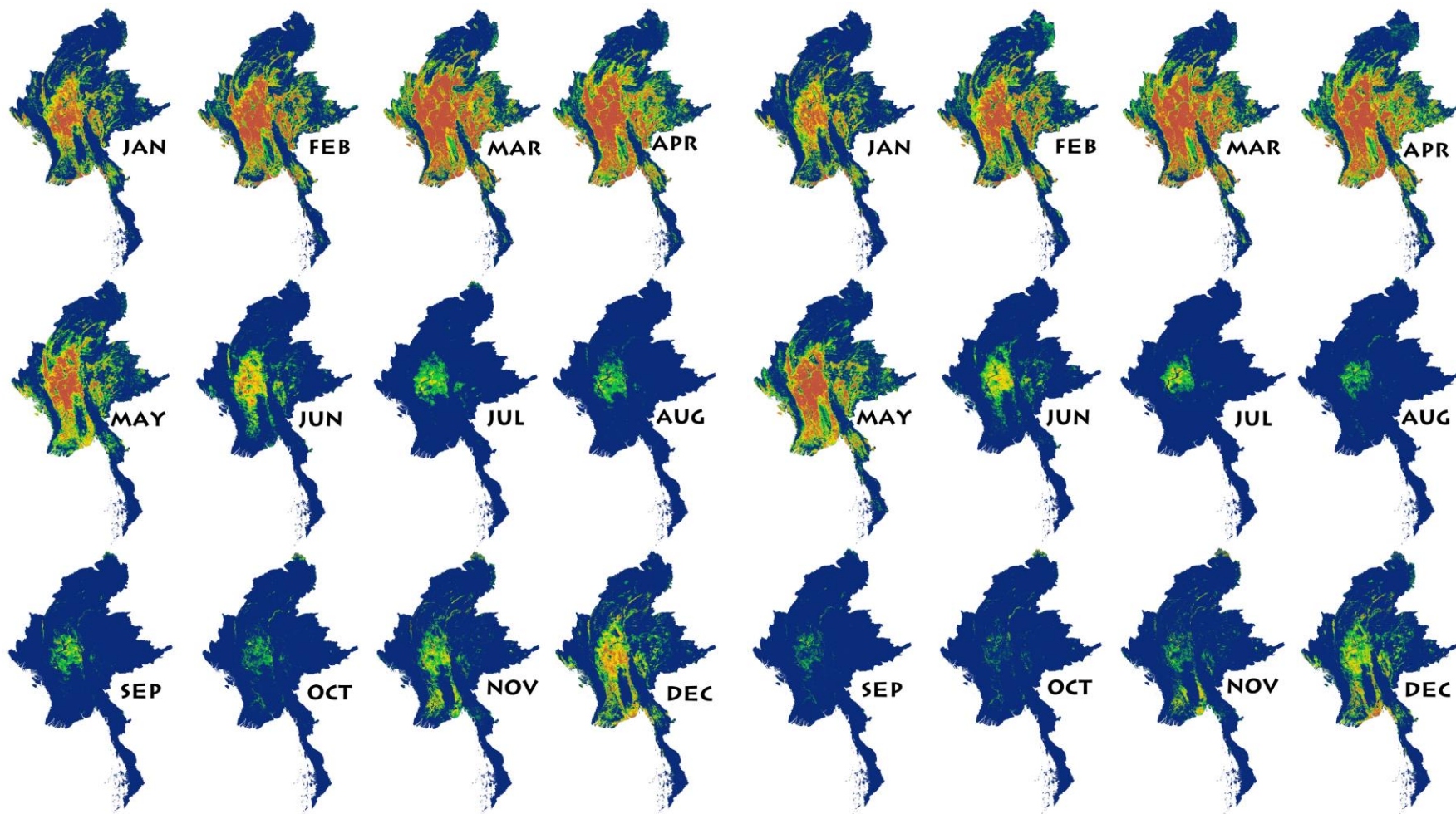




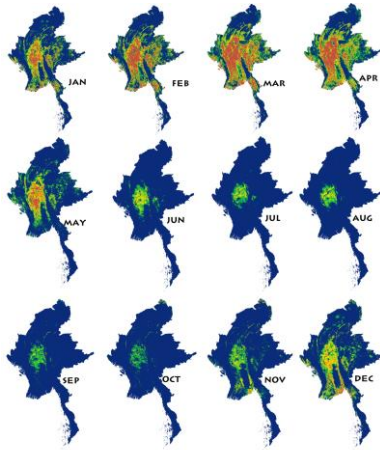
Technical Products



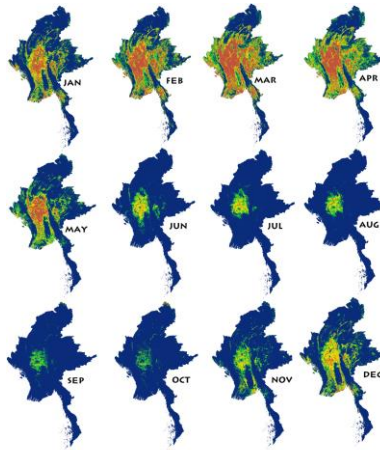
Understanding past hazards and disasters are also important in enhancing disaster preparedness. (10-year Land Surface Water Index maps)



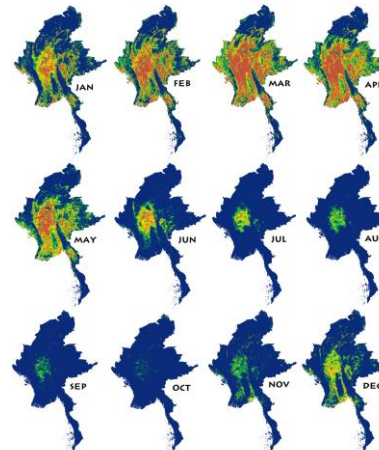
Drought maps during the 2015-2016 Strong El Nino



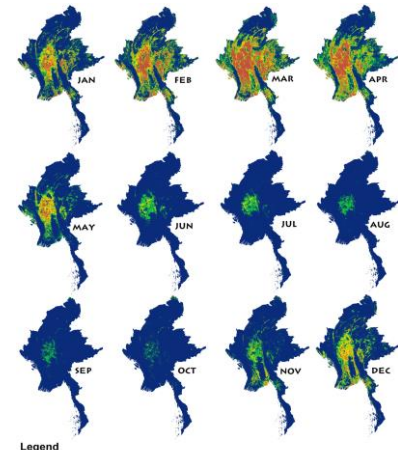
Legend
Drought 2008
Drought class
 Extreme/exceptional drought (D3/D4)
 Severe drought (D2)
 Moderate drought (D1)
 0/Non-drought/Abnormally dry (D0)



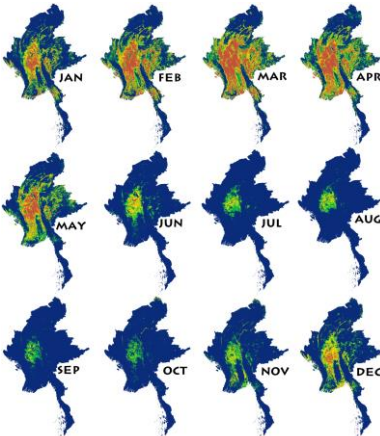
Legend
Drought 2009
Drought class
 Extreme/exceptional drought (D3/D4)
 Severe drought (D2)
 Moderate drought (D1)
 0/Non-drought/Abnormally dry (D0)



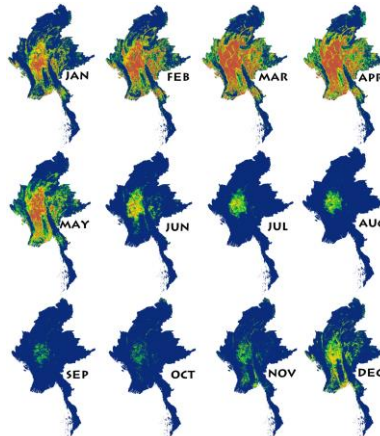
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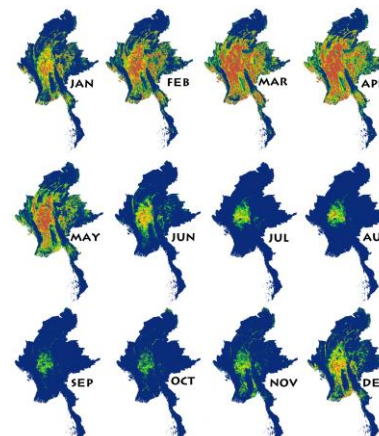
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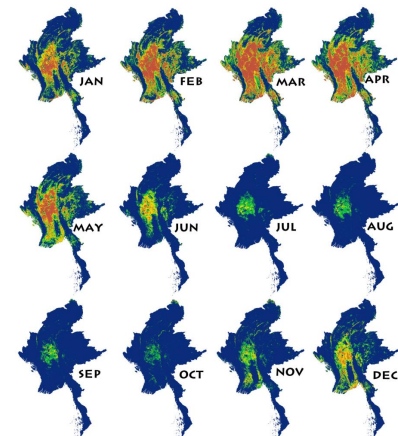
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Legend
Drought 2013
Drought class
 Extreme/exceptional drought (D3/D4)
 Severe drought (D2)
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 0/Non-drought/Abnormally dry (D0)



Legend
Drought 2014
Drought class
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Legend
Drought 2015
Drought class
 Extreme/exceptional drought (D3/D4)
 Severe drought (D2)
 Moderate drought (D1)
 0/Non-drought/Abnormally dry (D0)

Thank You