

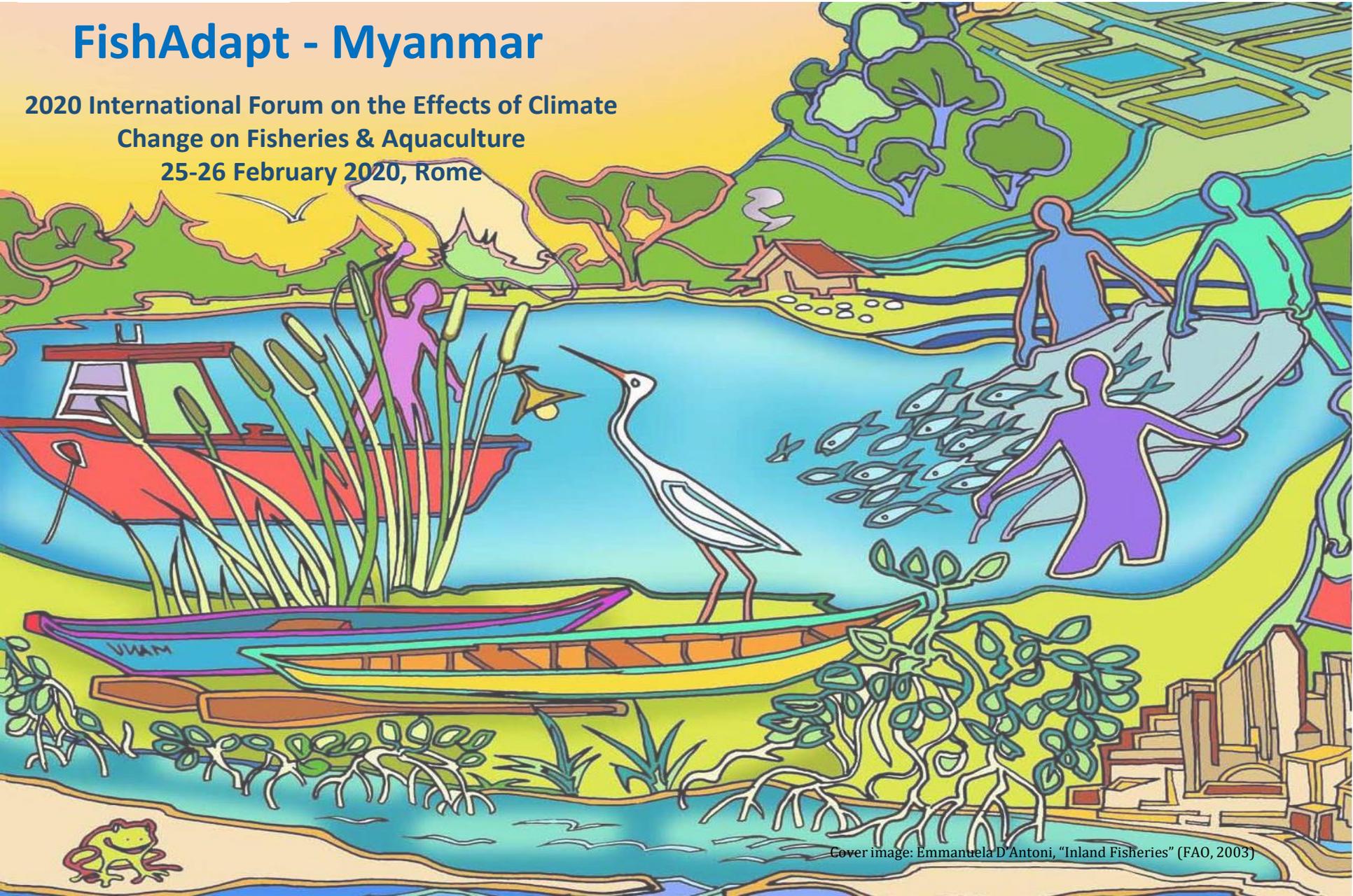


Food and Agriculture  
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# FishAdapt - Myanmar

2020 International Forum on the Effects of Climate  
Change on Fisheries & Aquaculture  
25-26 February 2020, Rome



Cover image: Emmanuela D'Antoni, "Inland Fisheries" (FAO, 2003)

## FishAdapt: “Strengthening the adaptive capacity and resilience of fisheries and aquaculture – dependent livelihoods in Myanmar”

The project is under Implementation: April 2017 – March 2021.

Funded by the Global Environment Facility (GEF – LDCF):  
USD 6.000.000

FAO is working in close collaboration with the Department of Fisheries (DOF) - Ministry of Agriculture, Livestock and Irrigation of Myanmar(MOALI)

FishAdapt’s objective is to enable inland, coastal fishery and aquaculture small scale communities to adapt to climate change by:

- a) understanding their vulnerabilities;
- b) planning and piloting sustainable practices and technologies for increasing their resilience and
- c) generating and sharing knowledge.



## Understanding the project's context



- The fisheries and aquaculture **sector** in Myanmar is **critically important** to the country's **food and nutrition security** (61 kg/capita/year), for its **economy** (9 percent of GDP) and livelihoods (1 million people directly and 3 million people indirectly involved).
- In Myanmar there thousands of **vulnerable communities** whose livelihoods depends of fisheries and aquaculture.
- **Overfishing**, rapid **decreasing of stocks**, **over-extraction of water**, introductions of **non-native fishes**, and the modification, degradation and loss of key **habitats** due to ongoing and further **development plans**.
- **Weak governance**, poor **institutional arrangements**, **lack of technical capacity** and knowledge, and limited **human and economic** resources.

Climate change is forecast to have a **significant impact** on this already vulnerable sector.

For **marine fisheries**; changes in **sea surface temperature** and changes in **ocean currents** (species distribution, and availability), **acidification** (coral reefs), **sea level rise** (mangroves, landing facilities, etc.)

For **inland fisheries**; **salt water intrusion**, higher inland **water temperature**, changing **rain patterns and water availability**.

For **aquaculture**; it is expected impacts such as **salt – water intrusion**, **flooding of ponds**, shortages in **water supply**, **invasive species**, new **diseases**, etc.





**Component 1:** Strengthening the national, regional and community levels regulatory and policy frameworks to enhance the institutional adaptive capacity.

**Component 2:** Assessing vulnerabilities, identification and implementation of critical adaptation practices planned and adopted by the fishing communities in vulnerable coastal and inland water regions of Myanmar.

**Component 3:** Identifying vulnerabilities and developing adaptation models to strengthen the resilience of small aquaculture farmers' communities to the impacts of the climate change.

**Component 4:** Knowledge management and sharing; scaling up adaptation and sustainable practices by facilitating their understanding and dissemination.

3 Regions / States (Yangon, Ayeyarwady, Rakhine); 120 communities & 90,000 beneficiaries (household level)



## FAO Approach to CC Adaptation in Fisheries

FAO understands climate change adaptation as a response to climate change that seeks to reduce the vulnerability of natural and human systems to climate change impacts. FAO has defined six priority action areas:

1. Development and application of data and knowledge for impact assessment and adaptation
2. Support and improvement of governance for climate change adaptation
3. Building of livelihood resilience to climate change
4. Targeted approaches for conservation and sustainable management of biodiversity
5. The identification, support and application of innovative technologies
6. Improved disaster risk management

FishAdapt is delivering results in each of these six priority areas, as follows:



# 1 Development and application of data and knowledge for impact assessment and adaptation

## a) Vulnerability assessments

- Top-down VAs – National and Regional (in partnership WorldFish). Sets of indicators
- Bottom-up / Community-based VAs (together with local NGOs). 120 very different communities

## b) Village profiling

- Gather critical livelihoods and natural resources information that is not readily available at the village level (majority of project communities are remote and some of very difficult access!)
- Uses Kobo Toolbox (in Myanmar language) and mobile phones for speed and greater accuracy

## c) Climate Change National Monitoring System (under development)

- A platform that will compile/organize all CC relevant information in FI&AQ at different levels that will help DOF in monitoring climate trends and risks across the sector
- Potentially helpful for providing systematic information needed to access future climate (GCF) and environmental (GEF) financing

## 2. Support and improvement of governance for climate change adaptation

### Legal and policy framework review and updating

**Participatory approach and transparency:** Although these principles have been introduced in Myanmar policies, they have not been introduced into legislation or draft legislation.

recommended that, in the context of the development of fisheries management plans, stakeholder involvement should be mentioned as a requirement. Legislation should establish basic principles of participation, including steps taken to ensure transparency of information, public notice and comment periods, open and documented decision-making processes. Moreover, we underlined the requirement to ensure that mechanisms for public participation in the decision-making process are understandable, known and accessible to all.

**Cooperation and coordination between institutions:** In capture fisheries regulatory framework, the collaboration and coordination with other departments/institutions/committees is very weak.

Therefore, we recommended to include in legislation provisions for the establishment of one or more inter-agency committees, convened by the Department of Fisheries, as mechanisms for coordination, cooperation and integration between the institutions. A strong collaboration with the Environmental Conservation Department, the Forest Department and the Land Department (DALMS) has been underlined. Collaboration to avoid overlapping off competencies, to have better control over the fisheries resources and habitats, and avoid contradictory actions.

### **The implication of lower-level authority in the decision-making process of fisheries management**

**measures:** Need to define clearly roles and responsibilities.

Despite the 2008 constitution, which transfers power to regions/states, it sometimes remains vague and imprecise (eg inshore water). The transfer of power is also very little detailed concerning the Draft Myanmar marine Fisheries Law (an undefined legal status which does not allow the rights granted to be identified). It was recommended that DoFs clarify these areas of uncertainty.

**Reinforce Monitoring, Control, Surveillance, and Enforcement (MCSE) measures:** Myanmar has a weak organizational structure for controlling fisheries-related activities.

Draft Myanmar marine Fisheries Law: Several measures need to be taken to tackle IUU. Control of fishing vessels needs to be foreseen both at sea and when vessels arrive at the port. In this sense, a reinforcement of the controls of the fish landings is necessary. Ports capable of operating these controls must be identified and private jetties must be either prohibited or highly regulated. For those reasons, inspectors have to receive specific training to be able to carry out their activities in an independent manner.

The three regional/state freshwater fisheries law do not have appropriate means for controlling inland fisheries activities.

### 3. Building of livelihood resilience to climate change

- a) 120 Community Integrated Management Plans (from VAs and Villages profiling) and specific pilots on; **Climate-Smart Aquaculture, Mangrove Friendly Aquaculture and Rice-Fish Culture**. Some examples of specific interventions are:
- (linked to EWEA) enhanced **monitoring of pond water quality** (temp, salinity, turbidity, etc.) to reduce fish mortality during high temperature and/or water scarcity episodes. (adapted to target species per region and habitat)
  - **waste management** in YGN (reducing plastic and other pollutants impacting water and habitats)
  - **fishery mapping and restoration of ecosystems** (i.e. coral reef, sea beds, etc.) YGN, AYA, RKH
  - strengthening and increasing the **height of pond dykes and farm bunds and deep** in ponds (floods and water scarcity) YGN, AYA, RKH
  - of fishing grounds in Yangon and Rakhine (MPA and moratoria) **spatial and temporal management**
  - Integrated **rice-fish** and **mangrove friendly** aquaculture in YGN, AYA and RKH
  - Community based **coastal erosion management**: mangrove reforestation, re-establishment of embankments and habitat management (erosion, protection, etc.)
  - Strengthening of inland aquaculture ponds by **growing barriers of trees** (integrating banana and papaya trees same as mangrove in coastal areas) in YGN and AYA.
  - Etc., etc.

## 4. Targeted approaches for conservation and sustainable management of biodiversity

### a) EAFM/EAAM

- Implementation through **training + implementation in 120 communities**: National Level Training (ToT), Regional Level Trainings, 120 Community Level Training and EAFM Planning
- 120 Communities Management integrated plans (MPAs, moratoria, banning of destructive gears, plastic, waste and pollution reduction, etc.)

### b) Fish Rice Integration

- Regional and Community levels training
- Technical knowledge and Equipment Supply
- Design and Pilots Implementation

### c) Mangrove Friendly Aquaculture

- Regional and Community Level Training
- Technical knowledge and Equipment Supporting
- Design and Pilot Implementation

### d) Water Quality and Disease Management

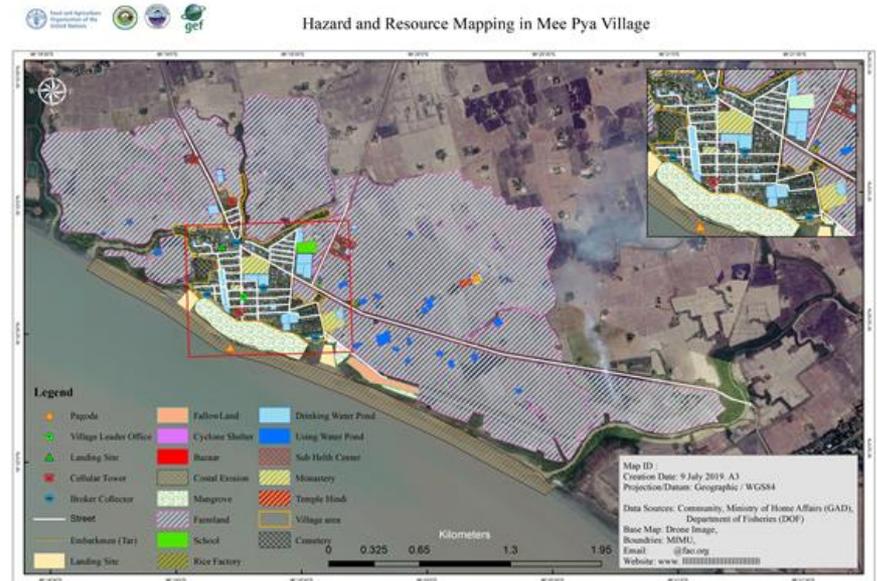
- Regional Level Training
- Community Level Training
- Technical knowledge and Equipment Supporting



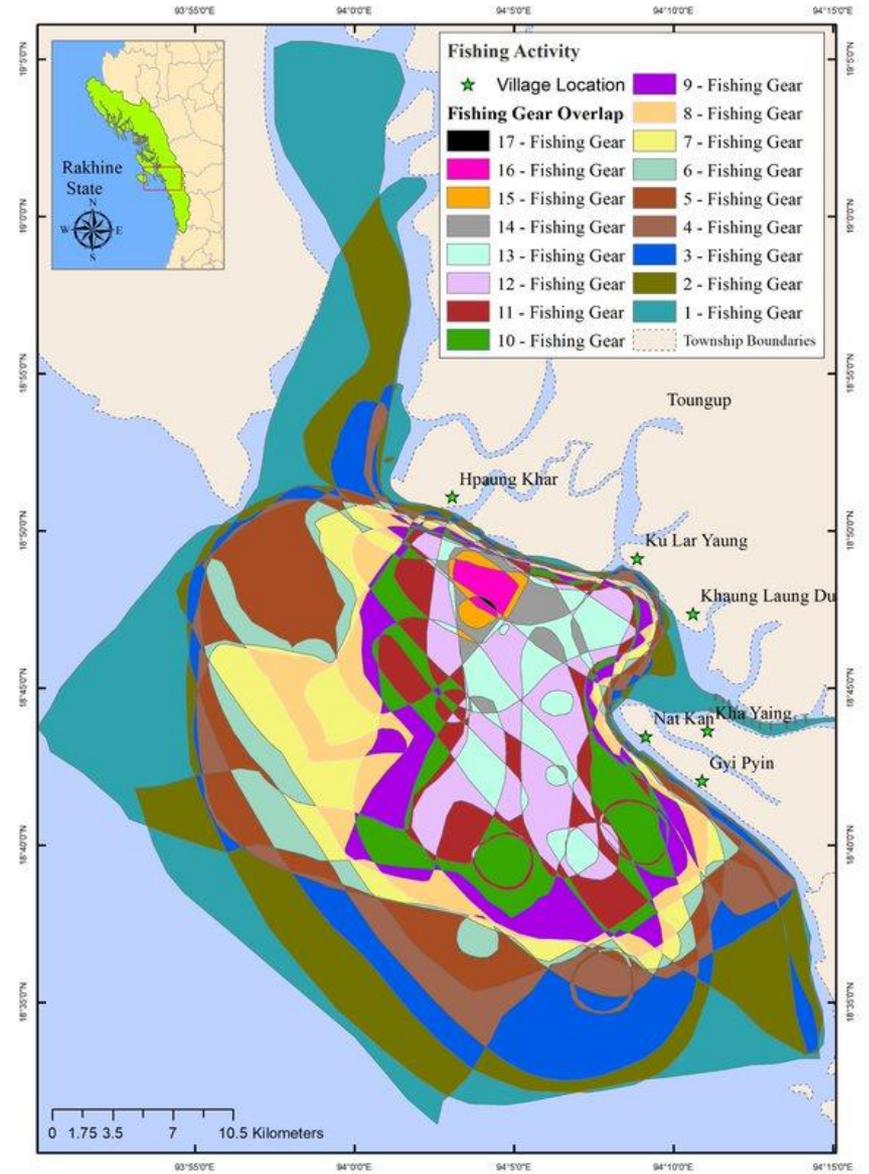
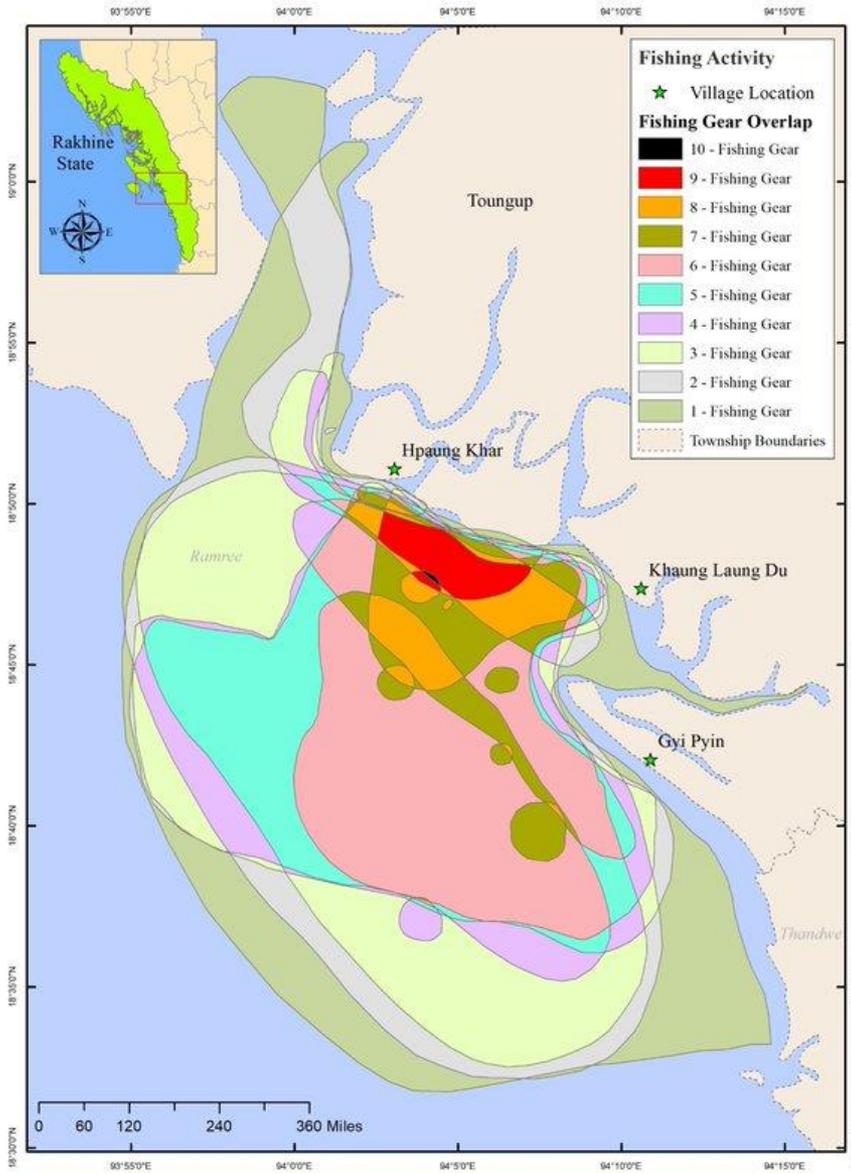
## 5. The identification, support and application of innovative technologies

### a) Drones and GIS Mapping

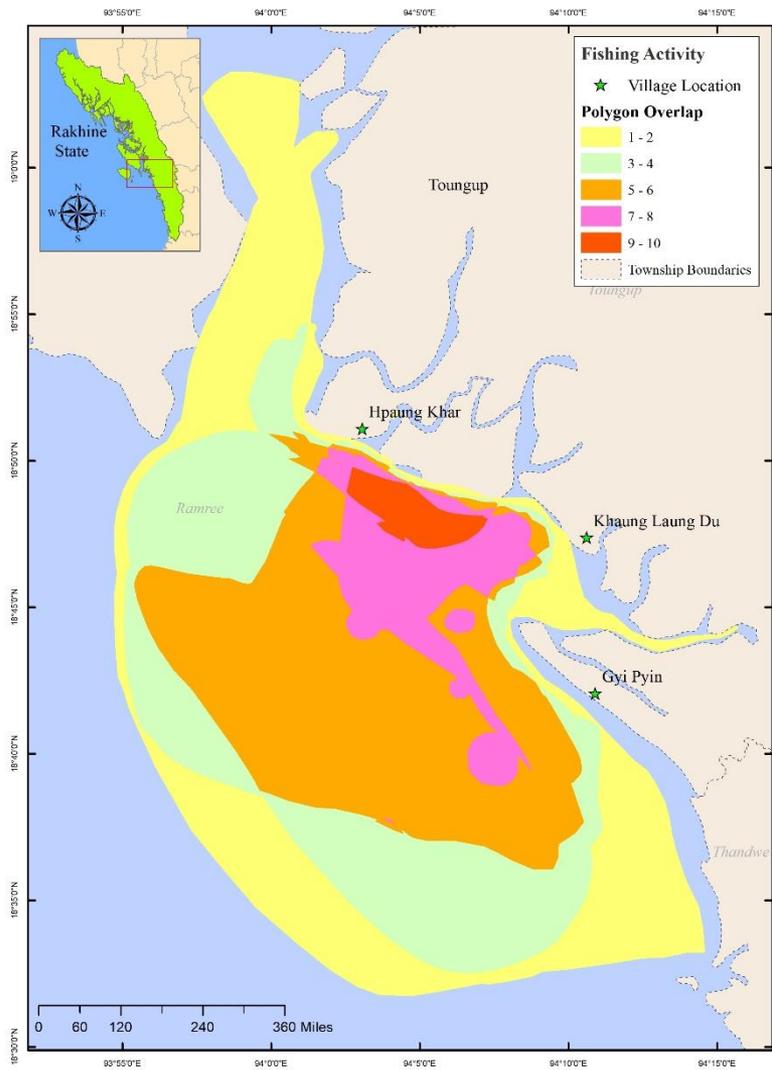
Partnership with Myanmar Aerospace Engineering University (MAEU) for introducing “drone based mapping”, which produces highly accurate maps of each of the 120 communities, used to identify potential hazards and existing resources. The maps are further digitalized and used on the planning process of the integrated plans and pilots



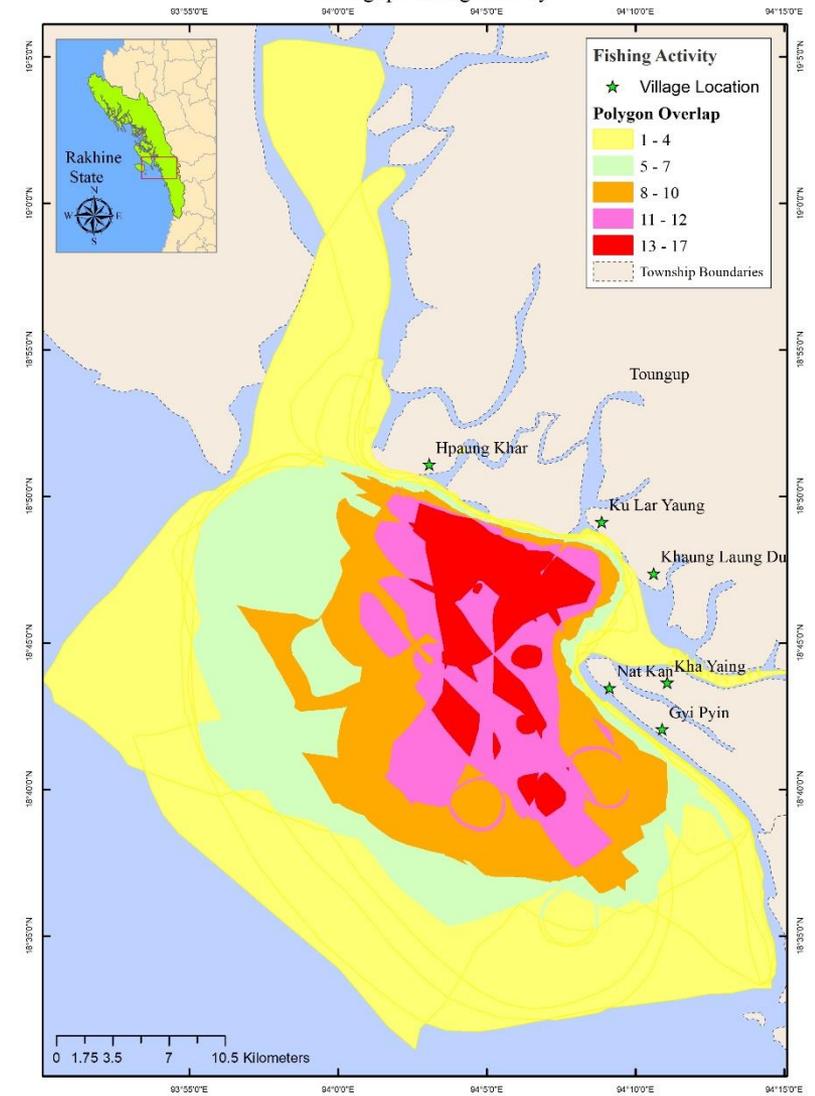




### Toungup Fishing Activity



### Toungup Fishing Activity



Fishing activity distribution map of all fishing gears used across three villages (Hpaung Khar, Khaung Laung Du and Gyi Pyin) in Toungup Township, Rakhine State. *(Produced using a polygon overlap analysis where the greater overlap of polygon (red) relates to high area use.)*

Fishing activity distribution map of all fishing gears used across targeted villages in Toungup Township, Rakhine State. *(Produced using a polygon overlap analysis where the greater overlap of polygon (red) relates to high area use.)*



## 6. Improved disaster risk management

### a) Early Warning Systems (EWEA):

- Analysis of specific indicators using specific tools and technologies (e.g. high temperatures, salty water intrusion, etc., but also floods, cyclones and droughts).
- Planning and piloting Early Actions that will be implemented based on the Early Warning information or triggers/indicators

- b) Ensuring that **Disaster Risk Management and Reduction** is integrating part of the into the Community-based Planning Process

### b) Safety at Sea

- Promoting enhanced institutional coordination and technical capacities among Safety-At-Sea focal institutions: DMH, DOF, and DDM plus GAD at community-level
- Community level basic training (equipment, increasing boat stability, navigation skills on bad weather conditions, etc.)



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спасибо 谢谢  
GRACIAS 谢谢  
**THANK YOU**  
ありがとうございました MERCI  
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شُكْرًا OBRIGADO