

## UP-SCALING COMMUNITY RESILIENCE THROUGH ECOSYSTEM-BASED DISASTER RISK REDUCTION

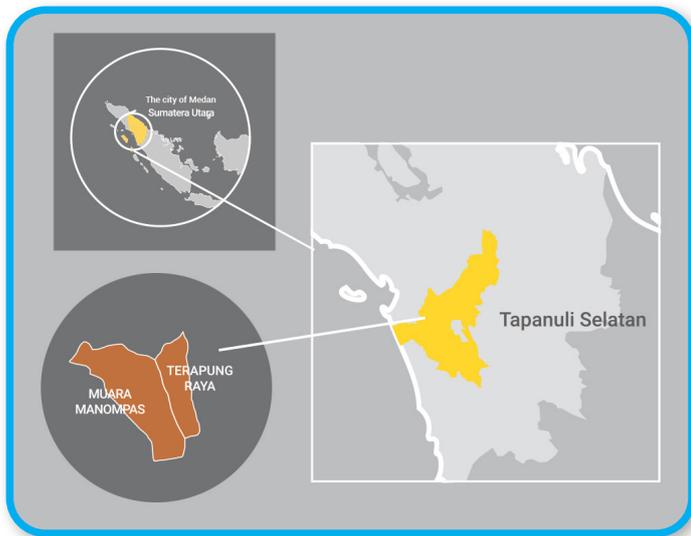


Fig.1:Map of the Project Sites

### Project overview

**Project location:** Indonesia

**Ecosystems under restoration/protection specifically in:**

- Muara Manompas and Terapung Raya village, sub district of Muara Batang Toru, South Tapanuli District in North Sumatera Province

**Key risks being addressed:** Degraded peatlands are prone to fire and subsidence, and the latter results in prolonged flooding.

**Project period:** May 2019- June 2022

**Project objectives:**

- **Overall objective:** Increase community resilience towards peat fire and peat subsidence, as well as enabling sustainable development through the implementation of Ecosystem-based Disaster Risk Reduction (Eco-DRR) practices in peatland ecosystems in Indonesia.
- **Specific objective:** Increase the adoption of Eco-DRR practices in peatland ecosystems that contribute to increasing community resilience.

**Project budget:** USD 298,948

- Over 10 years the present value of net benefits is 503,000 USD, including reduced property damage, income losses, carbon capture and pollution reduction (UMass-Amherst, 2022).

### Project Results



#### Capacity Building

- 15 Community-based Organisations established and actively engaged in peatland restoration through the bio-rights scheme;
- 2 community-based fire-brigade groups established and trained to monitor and respond to peat fires;
- The training topics included: Paludiculture, Disaster Management and peat fire prevention and simulation, Peatland ground water level monitoring, Canal blocking construction, Canal blocking maintenance, Aquaculture, Maggot Culture, Fish processing and, Finance and administrative reporting.



#### Advocacy with Government

- Provided inputs to the environmental strategic assessment of midterm development planning of Tapanuli Selatan District on peat restoration;
- Advocated the integration of the Eco-DRR approach into national peatland management training programme. As part of these efforts a guideline manual on 'Peatland Management without burning' was developed in coordination with the National Peatland and Mangrove Restoration Agency (BGRM). BGRM will use this manual nationwide in their field farmer schools training on peatland management;
- Policy dialogues with village authorities conducted to allocate village government budgets for Eco-DRR measures and development of village regulation on sustainable peat restoration.



#### Field implementation for resilience-building

- 4 canal blocking/dams constructed for rewetting of degraded peatlands, including instalment of 83 dip wells for water level monitoring and evaluation of the rewetting effect;
- 53 ha degraded peatland restored by rewetting and revegetated by replanting with native tree species through paludiculture for fire prevention;
- 5 boreholes installed to provide water supply for fire-fighting activities;
- 22 early warning system devices installed to alert communities on peat fire incidents.



#### Livelihoods strengthened

- 4,505 beneficiaries reached of which 49 percent are women;
- 708 people (50 percent women) from 150 households are engaged through bio-rights financial schemes. These grants enable households to engage in peatlands restoration and rewetting;
- Once households have met conservation goals, biorights grants can then be used for livelihoods diversification, e.g. aquaculture and pineapple farming for income generation.

Each Eco-DRR project has developed a replicable model for upscaling community resilience through three core components of Eco-DRR:

- Ecosystem Restoration/Protection
- Disaster Risk Reduction
- Climate Smart Livelihoods

In Indonesia, there is a greater emphasis on Disaster Risk Reduction through the combined peatlands and fire management approach (Figure 2).

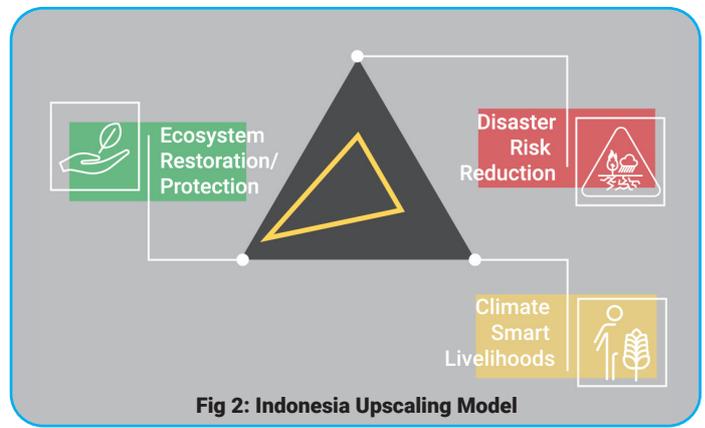


Fig 2: Indonesia Upscaling Model

**Eco-DRR upscaling model: Development of 3R approach for peatlands management through biorights grants, while advocating for peatland management through national training guidelines**



### Ecosystem Restoration/Protection

- Peatland restoration through community-based 3R approach: Rewetting, Revegetation and Revitalisation;
- Paludiculture techniques are promoted through native peat species (e.g., Rattan, Jelutong and Sago) and mitigating peat drainage.



### Climate Smart Livelihoods

- Bio-rights financial schemes enable local communities to engage in more sustainable livelihood practices to prevent further degradation and directly involve communities in peatlands restoration;
- Implementation of training on native peat knowledge and sustainable livelihoods diversification in peat ecosystems.



### Disaster Risk Reduction

- Peatland hydrological monitoring and water level management for preventing fires using early warning tools, boreholes, dip wells and canal blocking structures;
- Establishing and empowering community-based fire brigades to prevent, monitor and respond to peat fires.

**Key implementing partners:** Wetlands International Indonesia, Village and sub district authorities, police and military forces, district level authorities (Development planning Agency), Disaster Management Agency, Agricultural and Fishery Agency), Provincial Development Planning Agency, National Development Planning Agency, Ministry of Environment and Forestry, National Disaster Management Agency, and Peat and Mangrove Restoration Agency.



Fig 3: Community group members planting Jelutong, the peat native species in rewetted peat area



Fig 4: Community groups conducted peer trainings on canal blocking maintenance

