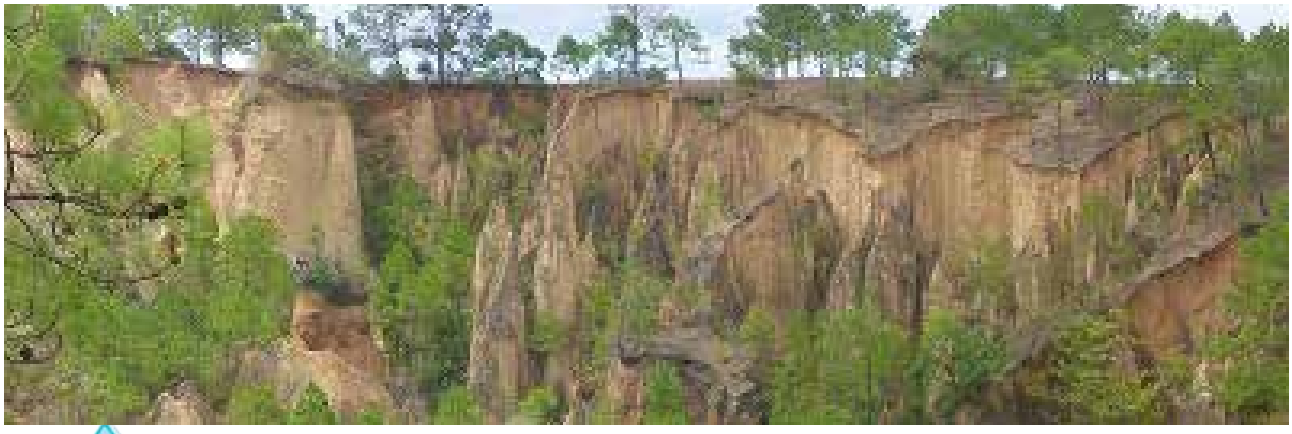
MONREC - JICA FDSNR
Component 2
Integrated Watershed Management of the Inle Lake Watershed

Project Overview

Forest Condition of Myanmar

Myanmar is still endowed with rich forests, which covers 46% of the nation land (30 million ha) in 2015, although around 9.2 million ha of forests in the country have been vanished from 1990 to 2015 due to economic development and land use change. In order to improve the situations, the New Administration of Republic of the Union of Myanmar has put its effort to environmental conservation in parallel with economic development in the country, particularly in rural areas, since 2016. Issuance of temporary logging ban and updating of Community Forestry Instruction were part of the countermeasures taken by the Government, to name a few. Along with improvement of policy and legislative framework for sustainable forest management, the Government has recognized capacity building of government officials in the relevant departments as an urgent issue for sustainable natural resource management.

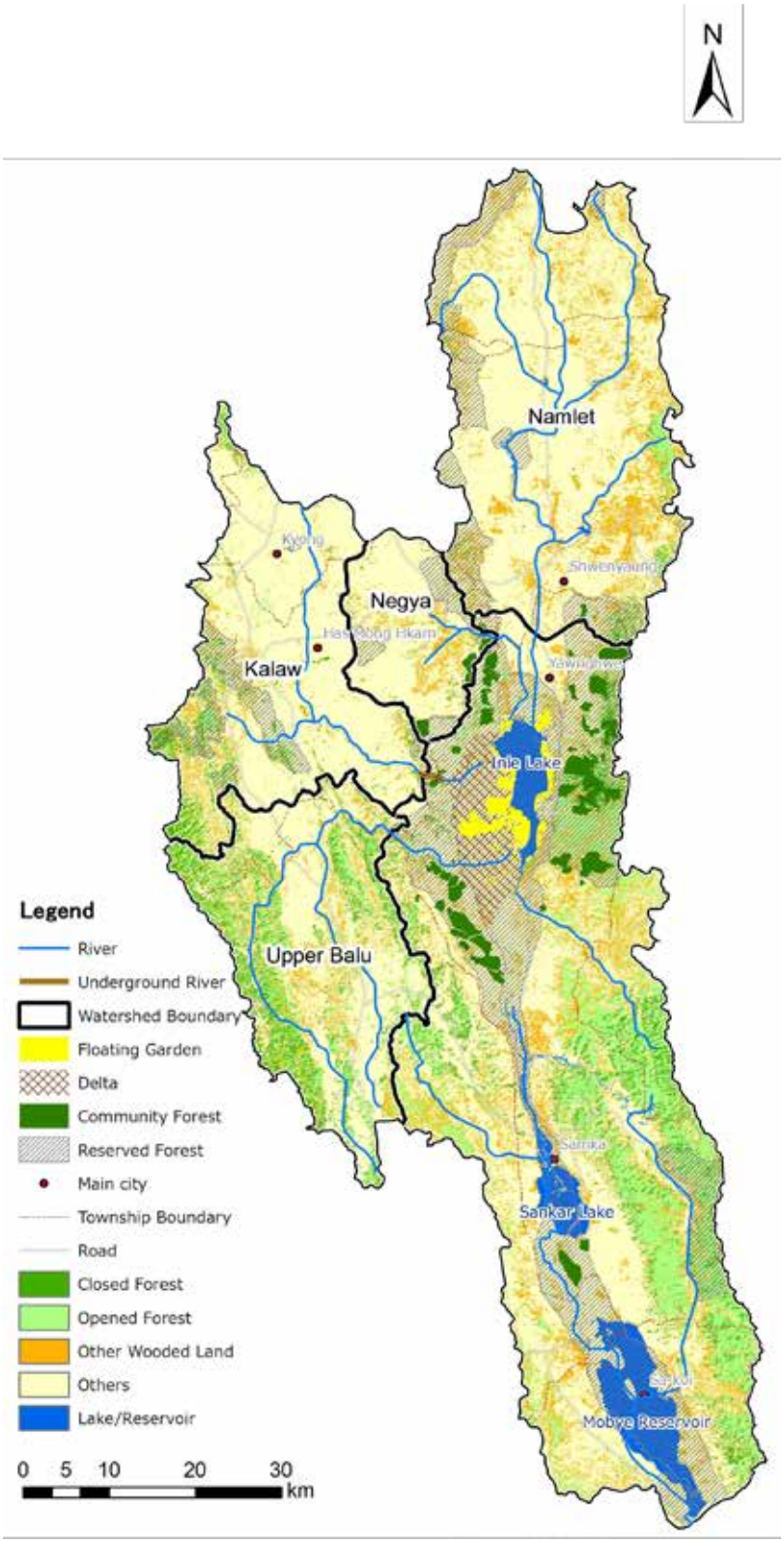


Inle Lake Watershed

Inle Lake is the second largest lake in Myanmar located in Taunggyi District, Shan State. The total area of the lake is around 16,300 ha, of which around 6,200 ha is the open water surface, though it is reported that its water surface has been recently reduced to around 4,350 ha. The total catchment of the lake is 3,682 km^2, of which 86.6% (or 3,191 km^2) are occupied by four major river basins (i.e., Namlet, Negya, Kalaw, and Upper Balu) located on the northern to western side of the lake.

In 2015, Inle Lake was registered by UNESCO as the Man and Biosphere Reserve owing to its cultural, ecological and economic values. Although the ecosystem conservation of the lake is one of the critical issues to be addressed by the State Government along with economic development in the region, the trend of environmental degradation in and around the lake has not been reversed yet.

In particular, the shortage of water holding capacity and shrinking of its open water surface have become obvious recently as climate change has become prominent. Extensive soil erosion in the watershed and the influx of suspended sediment into the lake through the major rivers are considered as main causes of the shortage of water holding capacity. Integrated watershed management with effective measures to reduce soil erosion is requisite for improvement of environmental conditions of Inle Lake.



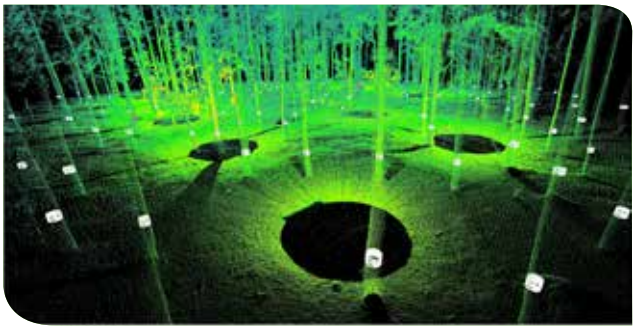
JICA's Technical Cooperation Project: The Project for Capacity Building for Sustainable Natural Resource Management/FDSNR

JICA (Japan International Cooperation Agency) has been implementing several Official Development Assistance (ODA) Projects in the forest sector in Myanmar over four decades and contributed to capacity development in the forest sector for sustainable forest management, particularly management of community and mangrove forests in the country.

In 2017, Forest Department (FD) under the Ministry of Natural Resources and Environmental Conservation (MONREC) and JICA mutually agreed to implement a new technical cooperation project named "The Project for Capacity Building for Sustainable Natural Resource Management (hereinafter referred to as "FDSNR")." FDSNR aims to realize sustainable natural resource management through capacity development of the relevant government departments. To this end, it consists of three components: namely Component 1: forest management, Component 2: Inle Lake integrated watershed management and Component 3: biodiversity conservation for ecologically balanced rural development. The new project has commenced its operations from June 2018.







Component 2 of FDSNR

Main Objectives

The main objective of Component 2 is to strengthen the integrated watershed management in Inle Lake watershed to reduce the influx of suspended sediment and eventually improve the natural environment of Inle Lake. Specifically, Component 2 aims to:

1. strengthen the collaborative framework for integrated watershed management;
2. demonstrate and promote effect measures for gully erosion control and sustainable land and forest management, which could be incorporated into integrated watershed management;
3. establish a river monitoring system to measure and record river discharge and suspended sediment in river flow; and
4. enhance the capacity of decision makers as well as technical officials of the relevant departments for integrated watershed management.

Contribution to the Attainment of Sustainable Development Goals (SDGs)

Among 17 SDGs, the implementation of Component 2 will contribute directly to the goals of “Climate Action” (Goal 13) and “Life on Land (Goal 15) and indirectly to the goals of “No Poverty”(Goal 1) and “Partnerships for the Goals” (Goal 17).

Design Phase of Component 2
(March 2019 - September 2020)

In 2019, JICA Project Team for Component 2 and the relevant departments of Shan State Government have conducted collection of baseline data and pilot implementation of potential effective measures, such as gully erosion control, agroforestry establishment, and community forestry introduction, as the design phase of Component 2 which activities are listed below. Based on the results of the design phase, JICA Project Team has developed an implementation plan of Component 2 from 2020 to 2023 with the effective measures for erosion control and sustainable land management in the watershed.

Assessment and survey

- Assessment of soil erosion potentials
  March - June 2019
- Socio-economic survey
  May - June 2019

River Monitoring

- Procurement and installation of equipment for monitoring of river discharge and suspended sediment
  March 2019 - September 2020
- Monitoring of river discharge
  October 2019 - September 2020
- Monitoring of Total Suspended Solid (TSS)
  February 2020 - September 2020 continue to Phase 2
- Survey on sedimentation in floating garden and Inle Lake
  August 2019

Implementation of pilot activities

- Implementation of pilot activities of gully erosion control
  July 2019
- Implementation of pilot activities of introduction of Community Forest and agroforestry model
  July 2019 - February 2020

Development of scale-up plans of the pilot activities

February - September 2020

Major Activities in the Implementation Phase of Component 2

The major activities in the implementation phase of Component 2 are: i) continuous monitoring of river discharge and influx of suspended sediment into the lake, ii) implementation of effective measures for gully erosion control iii) promotion of sustainable land and forest management, e.g., community forestry and agroforestry along with livelihood improvement, and iv) strengthening of the collaborative framework for integrated watershed management. Capacity building is a cross cutting issue across all the activities. Some key activities are highlighted as listed below.

Activity 01

Monitoring of River Discharge and Influx of Suspended Sediment into Inle Lake

Activity 02

Implementation of Effective Measures for Gully Erosion Control

Activity 03

Promotion of Sustainable Land and Forest Management, e.g., Community Forestry and Agroforestry along with Livelihood Improvement

Activity 04

Strengthening of the Collaborative Framework for Integrated Watershed Management

01

Monitoring of River Discharge and Influx of Suspended Sediment into Inle Lake

Measurement of water level and river flow velocity of the major rivers, i.e., Namlet, Negya, Kalaw, Upper Balu rivers to estimate river discharge

Measurement and monitoring of Total Suspended Solid (TSS) in river flow of Kalaw and Namlet rivers, particularly during the rainy season

Analysis of historical process of sedimentation in the lake through radiocarbon dating of soils sampled from lake bottom at different locations in the lake

Assistance in establishment of an organization setup for monitoring of river discharge and TSS in coordination with Irrigation and Water Utilization Management Department and FD

Sediment core sampling in the Inlay lake

Cross-section survey at Than Taung bridge

Automatic river water sampling system

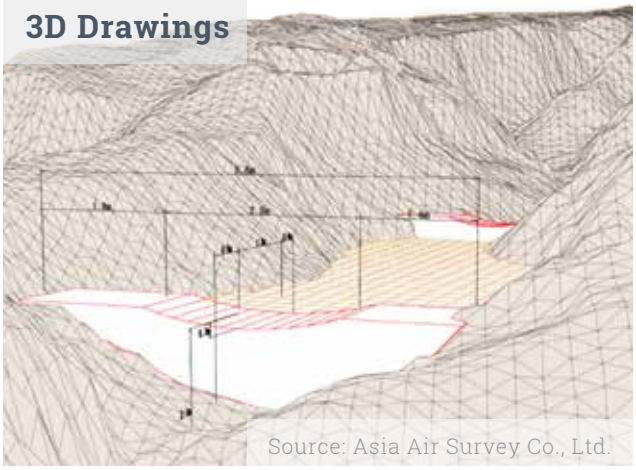
02

Implementation of Effective Measures for Gully Erosion Control

Introduction of Real Time Kinematic Survey and 3D mapping as a method of topographic survey of target gullies for erosion control works, so that less experienced officials could conduct the survey works

Survey

3D Drawings



Source: Asia Air Survey Co., Ltd.

Construction and Maintenance

Implementation of erosion control measures against small to medium scale gullies together with technical officials of FD and IWUMD to provide them opportunities to experience all the processes of erosion control works (i.e., survey, designing, construction, and inspection/ evaluation after construction)

Full guidance on less-risk but high effective techniques for gully erosion control, which are not only suitable to the conditions in the watershed but also technically and financially feasible in the local context of Myanmar

Existing gully in Kone ni Village

Erosion Control after construction

03

Promotion of Sustainable Land and Forest Management, e.g., Community Forestry and Agroforestry along with Livelihood Improvement

Introduction and demonstration of detailed steps for effective introduction and establishment of new Community Forestry (CF) in accordance with CF Instructions and CF Standard Operating Procedure developed by FD

01 **Consultation with the local community**

02 **Identification and selection of the members**

03 **Discussion on Visions, Missions and Functions of CF User Group**

04 **Identification of Target Area of CF**

05 **Submission of Application Form for Introduction of CF Target Area**

06 **Development of Forest Management Plan (FMP)**

07 **Issuance of CF certification**

08 **Development of Annual Plan**

09 **Monitoring of Implementation of FMP**

Assistance in the legalization of a new collaborative management of the specific reserved forest, i.e., economic production circle reserved forest, instead of community forestry, to protect such a type of reserved forest in collaboration with local communities



Introduction and demonstration of agroforestry models effective for increase of vegetation covers on sloping lands simultaneously with improvement of local livelihoods



Introduction of potential alternative livelihood options in addition to agroforestry models to help local communities make their farming activities more sustainable





04

Strengthening of the Collaborative Framework for Integrated Watershed Management

Provision of technical assistance to the project management unit exclusively for Component 2 (Sub-Project Management Unit for Component 2), composed of the relevant organizations (e.g., FD, IWUMD, General Administration Department, and Department of Agriculture) in the management, monitoring and supervision of the project activities of Component 2

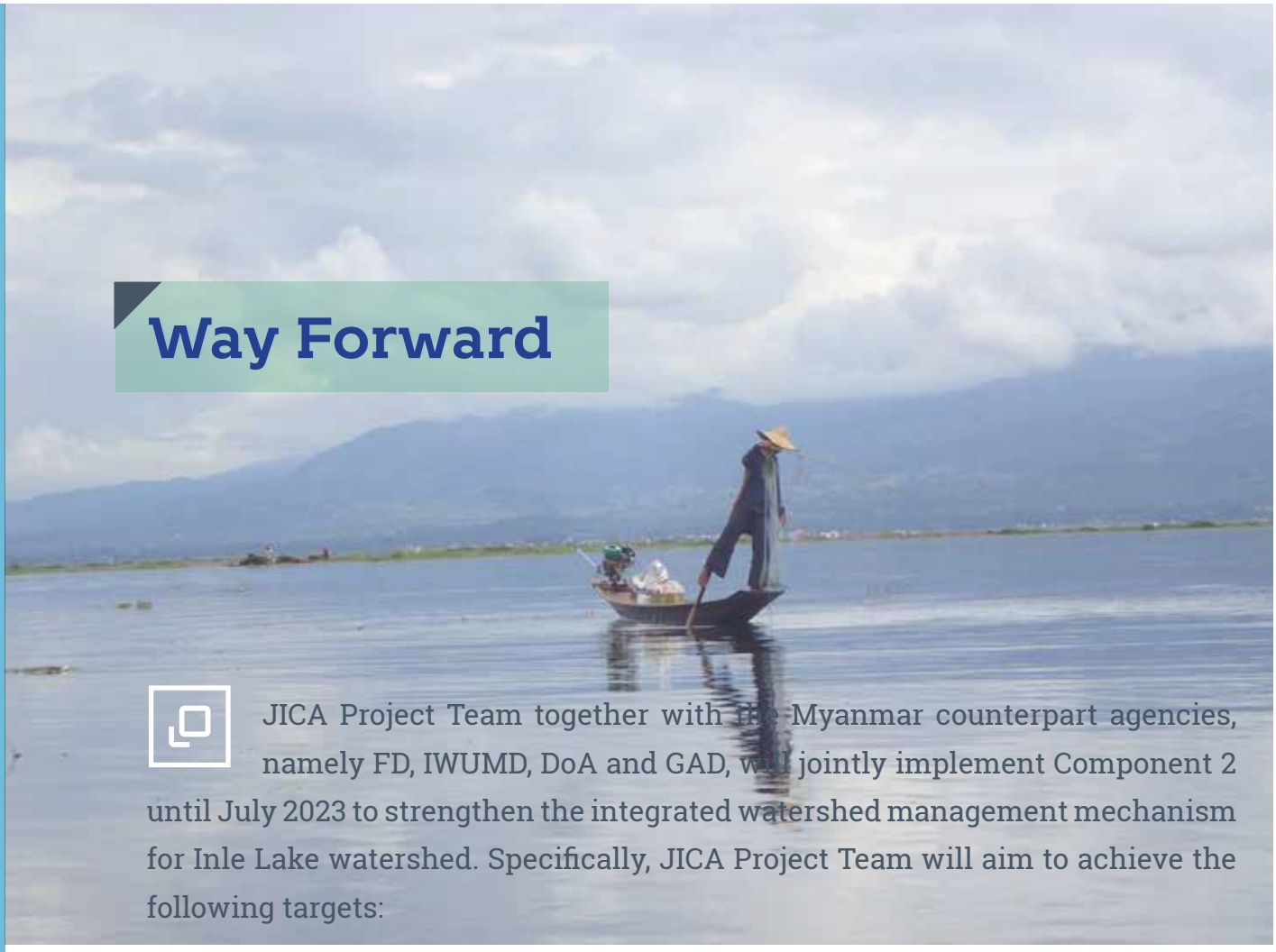
Enhancement of the capacity of the relevant officials involved in Sub-PMU to take necessary actions for integrated watershed management

Assistance in the development policy recommendations for effective watershed management, particularly promotion of gully control measures, CF and agroforestry models

Enhancement of the capacity of technical officials of FD, IWUMD, and DoA of the working groups for Component 2 in undertaking the field activities relating to gully erosion control, CF, and agroforestry models

Strengthening of the functions of CF Network Working Group at district level as a platform for promotion of CF in Taunggyi District





Way Forward

JICA Project Team together with the Myanmar counterpart agencies, namely FD, IWUMD, DoA and GAD, will jointly implement Component 2 until July 2023 to strengthen the integrated watershed management mechanism for Inle Lake watershed. Specifically, JICA Project Team will aim to achieve the following targets:

- ☑ New construction works of gully erosion: *more than 8 locations*
- ☑ New establishment of CF: *more than 5 locations*
- ☑ Establishment of a new collaborative management model: *more than 1 location*
- ☑ Introduction of agroforestry models: *more than 6 locations*
- ☑ Introduction of alternative livelihood options: *more than 5 locations*

- ☑ Collection and accumulation of monitoring data on river discharge and suspended sediment
- ☑ Development of training materials for technical officials of the relevant departments
- ☑ Assistance in the integration of the project activities in the relevant district or state plans
- ☑ Preparation of a/draft government document/s for the new collaborative management of economic production circle reserved forests in the watershed
- ☑ Assistance in the formulation and submission of policy recommendations for integrated watershed management to the state government

To effectively achieve the objective and targets of Component 2 listed above, due consideration is given to collaboration and coordination with the relevant organizations, not only government departments but also non-government organizations.

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