

## Darwin Initiative Main and Post Project Annual Report

To be completed with reference to the “Writing a Darwin Report” guidance: (<http://www.darwininitiative.org.uk/resources-for-projects/reporting-forms>). It is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)

**Submission Deadline: 30<sup>th</sup> April 2020**

### Darwin Project Information

Project reference	25-005
Project title	Enabling ecosystems to deliver sustainable development goals at Lake Indawgyi
Country/ies	Myanmar
Lead organisation	Fauna & Flora International
Partner institution(s)	<ul style="list-style-type: none"> <li>• Nature and Wildlife Conservation Division (NWCD), Forest Department (FD)</li> <li>• Indawgyi Environment and Development Association (IEDA)</li> <li>• Indawgyi Natural Farming Association (INFA)</li> <li>• Inn Chit Thu Social Development and Eco-tourism Group</li> <li>• Mohnyin Natural Greening Development Association (NGDA)</li> <li>• Wetlands Work</li> </ul>
Darwin grant value	329,590 GBP
Start/end dates of project	01 July 2018 - 31 March 2021
Reporting period (e.g. Apr 2019 – Mar 2020) and number (e.g. Annual Report 1, 2, 3)	April 2019 – March 2020 (Annual Report #2)
Project Leader name	Frank Momberg
Project website/blog/social media	None
Report author(s) and date	Zaw Min Oo, 30 April 2020

### 1. Project summary

Lake Indawgyi, a Ramsar site, is Myanmar’s most important wintering ground for >20,000 water birds. Indawgyi’s wetlands support significant populations of threatened species: Sarus crane (VU), Woolly-necked stork (VU), Peacock softshell turtle (EN), Hog deer (EN), and threatened fish species, including 6 newly-described endemics. Watershed forests support Chinese pangolin (EN), Asiatic black bear (VU), Sun Bear (VU), Dhole (EN), Shortridge’s leaf monkey (EN), Eastern hoolock gibbon (VU), Rufous-necked Hornbill (VU). White-rumped and Slender-billed vultures (CR) are also present.

This rich biodiversity is under threat from multiple pressures. Unsustainable firewood collection, illegal timber extraction, and agricultural encroachment in the upper watershed are causing soil erosion and sedimentation. Traditional low-input rice production is being replaced by chemical fertilizers and pesticides which are threatening the fish and bird species in the lake. Poor sanitation facilities are an additional, severe and increasing source of pollution in the wetlands. Elsewhere, at Lake Inle, chemical fertilizers and degradation of the watershed have caused the lake to silt by 2m, and rendered the lake water unsafe for drinking, threatening biodiversity and human health. It is imperative that we learn from this situation and take early mitigating action at Lake Indawgyi.

The livelihoods of 30,000 indigenous people depend on ecosystem services provided by Indawgyi's wetlands and forests. Most poor households undertake agricultural activities; farm sizes are small and many households lack sanitation. Addressing their urgent development needs is essential to promoting human health, economic development, and protecting the unique biodiversity of this globally important wetland.

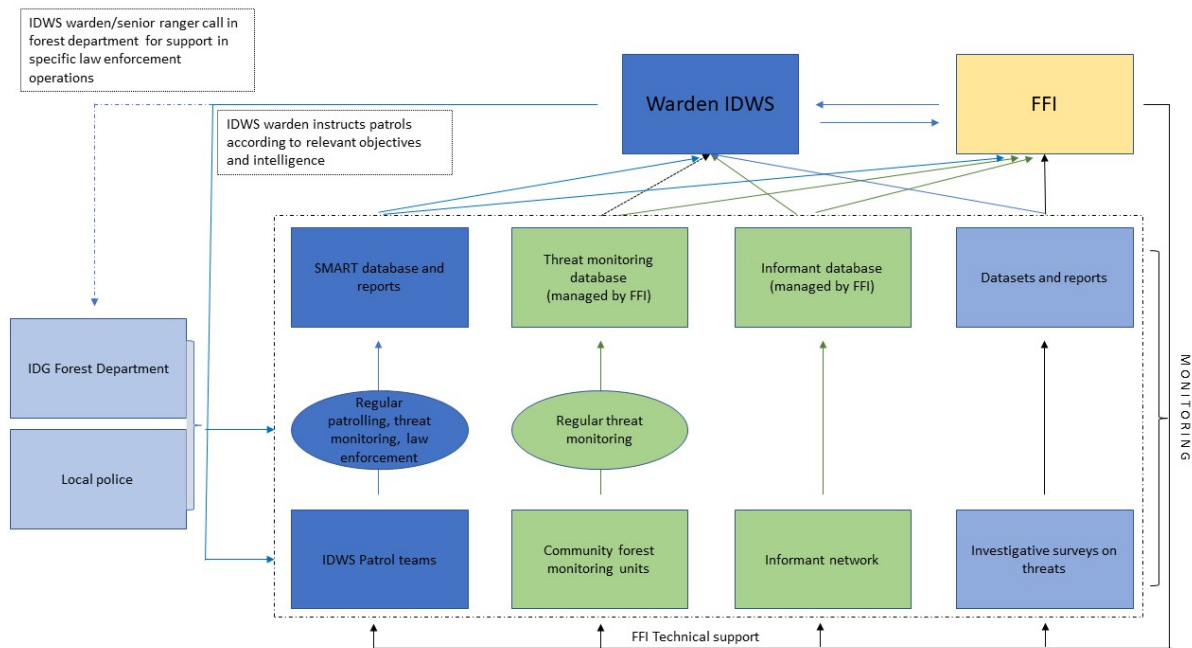
## 2. Project partnerships

Several partnerships with national and local organisations are central to this project. All have developed positively over the reporting period, with a number of achievements with respect to involved in project planning, implementation, monitoring, achievements and lessons.

### 2.1 Nature and Wildlife Conservation Division (NWCD), Forest, Department (FD)

The capacity of the NWCD management unit for Indawgyi Lake Wildlife Sanctuary/ Indawgyi Biosphere Reserve (IBR) has significantly been improved in the following fields:

- Through a participatory process, the project supported the development and improvement of the overall collaborative law enforcement system:



- The Project has developed improved guidelines for SMART patrolling, provided class room and on-the-job training in collaborative SMART patrolling, which included threat monitoring, community-based intelligence work, patrolling and law enforcement. Intelligence gathering has been significantly improved through the establishment of informant networks, patrol coverage has significantly increased, as well as law enforcement.

- The project supported annual drone based monitoring of encroachment in the critical wetland habitats of the Indaw Chaung seasonally flooded grasslands. This shows that encroachment has been significantly reduced over the period when a comprehensive awareness and collaborative patrolling campaign has been in place.
- The project FFI supported the establishment of joint lake patrols of NWCD rangers with township fisheries departments officers, which has led to increased capacity of fisheries department officers and NWCD rangers to patrol and enforce fisheries laws, in particular of the no-take zones in the lake.

## **2.2 Indawgyi Environment and Development Association (IEDA): Community forestry/ Mohnyin Natural Greening and Development Association (MNGDA)**

FFI has continued to support IEDA and MNGDA through technical/ financial and administrative small grant management training and small grant support to expand community forestry and agroforestry.

## **2.3 Indawgyi Natural Farming Association (INFA)**

FFI has provided comprehensive training to INFA and its members for organic rice farming techniques and the 'participatory guarantee system - PGS' for organic farming. 157 INFA members participated in the training and 157 farmers passed the PGS Myanmar organic certification. FFI also supports rice seed production training to INFA farmers by collaboration with township agricultural departments.

## **2.4 Inn Chit Thu ("Lovers of Indawgyi")**

FFI's partner wetland work has trained an Inn Chit Thu team in the development of household waste-water 'handy pot' systems. The construction of household waste water treatments systems in the flood prone zone of Indawgyi lake is ongoing.

Inn Chit Thu also received hospitality training and training for the management of the newly opened visitor education centre.

FFI provided training in organisational development, restructuring of the board, financial management training, work planning and technical reporting, in particular in relation to the visitor education centre.

## **2.5 Shan Maw Myae**

In the previous review of our technical report a question was raised about the partnership with Shan Maw Myae. The initial relationship with Shan Maw Myae has been based on 'trading of organic rice flour' rather than milled rice.

Based on a cost-benefit analysis and the available Darwin budget for post-harvest rice processing equipment, we concluded that improved rice milling, drying and storing would be more economically more beneficial to farmers to move up the value chain and increase revenues than to introduce rice flour production.

We identified together with farmers that the main problem for organic rice marketing was the quality of the rice which resulted in low prices.

The reasons are both the low quality of rice mills in Indawgyi and also too high moisture content of the paddy. This causes a high proportion of broken rice and also increased pest problems with rice weasels. Therefore Darwin investment for post-harvest rice processing facilities was best invested in a high quality rice mill. Training has also been provide for best practices in rice drying and storage. With additional funding FFI will also improve drying and storage facilities to further improve rice quality and prevent pests.

Since Shan Maw Myae has only a potential partner for the production of rice flour, the relationship was no longer relevant. Instead FFI provided training to INFA to develop a domestic market for organic rice with a diverse range of buyers in Myitkyina, Mandalay and Yangon, as well as in Mohnyin district (Indawgyi region). In 2020 FFI will continue to improve marketing of organic rice.

### 3. Project progress

#### 3.1 Progress in carrying out project Activities

NB: The activities are reported here as they are numbered in the original proposal.

#### ***Output 1. A decentralised and collaborative management committee and mainstreamed ecosystem services approach places the Indawgyi Lake Biosphere Reserve under management systems that respect integrated development and biodiversity needs***

##### *1.1 Facilitate regular meeting of the Biosphere Reserve Indawgyi management/ stakeholder committee*

The second BR management/ stakeholder committee meeting was held in Education Centre on 8<sup>th</sup> October 2019 with a total 61 participants from departments, CSOs, schoolteachers and local communities were attending the meeting. The meeting shared the information to all participants about activities which have been completed, reviewed progress based on the collaboratively developed management plan and discussed the work plan for next year.

##### *1.2 Facilitate regular meeting of the Indawgyi civil society network (bi-annual)*

In Year 2, two Indawgyi Civil Society Network meetings were organized in September 2019 and February 2020. A total of 10 participants from 5 CSOs joined the first meeting and discussed about social and organizational development plan and community-based waste management plan for the villages in the northern part of the Biosphere Reserve. At the second meeting, CSOs discussed about awareness for Community Forestry and Organic farming at the famous pagoda festival which receives more than 150,000 visitors annually.

##### *1.3 Facilitate regular meetings of law enforcement agencies (forest department, Indawgyi wildlife sanctuary/ biosphere reserve management authority, fisheries department police).*

FFI facilitated regular meetings with both forest and fishery departments every two months. Both departments also had regular meetings with the police for patrol and law enforcement planning and coordination.

##### *1.4 Recruit and train local informant network*

This activity was completed in Year 1.

##### *1.5 Recruit local community rangers*

This activity was completed in Year 1.

##### *1.6 Establish two collaborative patrol units (5 pax each), including wildlife sanctuary rangers and community rangers for forest patrols*

This activity was completed in Year 1.

##### *1.7 Establish collaborative lake patrol team (fisheries department, WS, community ranger)*

This activity was completed in Year 1.

##### *1.8 Provide basic field equipment (GPS/ cameras/ field gear)*

This activity was completed in Year 1. However, in Year 2, the project provided two cyber tracker devices which record patrol routes and data during the patrolling.

##### *1.9 Provide initial SMART patrolling training to collaborative patrol units, on the job training first 3 month.*

This activity was completed in Year 1.

**1.10 Provide SMART refresher training**

Refresher training (classroom & on-the-job) was provided to the IDWS forest patrol members (9 forest rangers and two community rangers) throughout 12 days in November 2019. The main topics were (1) Conducting a patrol using cybertrackers; (2) Upload Cybertracker SMART data into the IDGWS SMART database (3) Review of IDGWS patrol quality and threats (agricultural encroachment, logging, fishing, mining, hunting). Training program was in the “Report Training IDGWS\_Maximilian Graefen\_2019”.

**1.11 Monthly collaborative SMART patrols, operate informant network**

Regular monthly collaborative SMART patrols were continued during the reporting period as in previous year. Two forest patrol team and one lake patrol team with one community ranger at each team conducted SMART patrol for 10-15 days per month. The SMART data document a significant decline in illegal logging. During this reporting period, number of key informants increased from 10 to 22. The progress of the regular was detailed in the “Report\_Indawgyi Law enforcement2019”

**1.12 Annual UAV monitoring of encroachment and illegal logging areas**

This activity was planned to be conducted by the FFI GIS team in the second half of March. However, it had to be postponed due to covid-19 restrictions.

**Output 2. Community forestry and agroforestry in designated buffer zones of Indawgyi Lake Biosphere Reserve reduce deforestation and forest degradation, while maintaining access to essential natural resources**

**2.1 Establish forest user groups**

In Year 1, total of nine forest user groups (FUG) with 539 households were formed to establish community forestry in the designated buffer zone of Indawgyi biosphere reserve. In Year 2, additional 11 FUGs with 442 households were formed groups was formed during the reporting period. The detail was stated in the “Report\_Community Forestry\_Annual Progress(Jan-Dec2019)\_KachinState”

**2.2 Train forest user groups in forest inventory and forest management planning.**

Basic forest inventory and management was introduced at the Community forestry technical training organized in February 2020. Total of 36 participants from 20 FUGs joined the training.

**2.3 Forest inventory and forest management planning**

Forest inventory was conducted at nine FUGs. Based on the inventory data, the community forestry management plan was discussed and planned for nine FUGs. Inventory for 11 FUGs was planning to conduct in Year 3.

**2.4 Train FUGs in tree nursery development**

3-days technical training on community forestry was organized for nursery establishment, seed collection, site selection and nursery management for 20 FUGs in Feb 2020. Total of 36 participants from 20 FUGs joined the training.

**2.5 Establish and manage nurseries operational**

FUGs produced seedlings at their own nursey for their community forestry. After the technical training for nursery establish and management in Feb 2020, each FUGs began nursery to produce about 8,000 to10,000 seedlings.

**2.6 Train FUGs in reforestation/ agroforestry techniques**

Agroforestry for tea planting was conducted with FUGs members and seven tea farmers.

**2.7 *Establish woodlots and agroforests***

Project facilitated formation of nine FUGs in Year 1 to establish Community forestry at designated buffer zone of Indawgyi Biosphere Reserve. Nine FUGs produced total of 35,640 seedlings and those were planted at their sites in August and September 2019.

**2.8 *Facilitate community forestry certification***

Community forestry awareness talks and discussion for the procedure for community forestry certification application was conducted at three villages in December 2019 for nine FUGs and 10 villages in March 2020 for 11 FUGs.

***Output 3. Organic rice farming and value-adding practices result in certified organic products that provide income to at least 200 households and protect wetland biodiversity***

**3.1 *Undertake participatory consultation with farmers to establish their knowledge and priority learning needs (knowledge baseline)***

This activity was conducted in Year 1, but we continued this activity in the reporting period with the farmers who joined as new members of INFA. Dr. Than Than Sein organized training in August and December, and we invited Chairman of Myanmar Organic Growers and Producers Associations for sharing his experience and discussed the observation of his field visit and the pros and cons of organic farming and integrated problem solving for organic farming.

**3.2 *Develop training resources that are targeted to the farmer learning needs identified in 3.1, and pilot***

This activity was completed in Year 1.

**3.3 *Roll out amended training modules and offer refresher training***

Training modules were improved. Training courses, both class-room and on-the-job training, on internal control systems for PGS, and the production of natural fertilizers and natural pest control were organized in May 2019 (157 farmers participated), June 2019 (52 participants), August 2019 (45 farmer participants) and December 2019 (49 farmer participants). The courses were taught by Dr. Than Than Sein, an organic farming expert and her team members.

**3.4 *Review the governance structure and capacities of INFA and identify priority development needs to enable scale-up, pending the anticipated new membership numbers.***

This activity was completed in Year 1.

**3.5 *In consultation with INFA and the organic certifier, agree timeline and responsibilities for the certification process***

This activity was completed in Year 1.

**3.6 *Train internal auditors***

FFI introduced the participatory grantee system (PGS) for the farmers in Indawgyi for organic certification. PGS farmers were formed into groups of 5 to 10 farmers to apply internal control systems for their chemical free agricultural practice. In Year 1, more than 106 farmers and this reporting period 99 farmers were trained for internal control systems by Dr. Than Than Sein and her team. Please see the internal control system at the "Report\_PGS Inspection Trip Report \_DEC 2020" and "Report\_PGS Certification in Indawgyi\_FEB 2020".

**3.7 *Revise and update the INFA governance structures and financial control mechanisms***

This activity was completed in Year 1.

**3.8 *Establish supply chain control points for rice and rice flour***

The project team and INFA continued two different supply chains as in Year 1 after the harvesting period: distribution in the regional market and distribution in Yangon market.

With the support of the project, INFA members milled the rice and distributed the organic rice within the Indawgyi area while an FFI market development consultant carried out national level market assessment in Yangon and Mandalay. Indawbyi Rice was presented at the Yangon Export Fair in March 2020. After introducing Indawgyi organic products in Yangon Expo fair in March, INFA received organic rice order from buyer and restaurant in Yangon. Please see detail in the “Report\_Progress of Organic Farming Activity in Indawgyi(July2018-Dec2019)”.

### 3.9 *Set up and prepare for rice post-harvest processing facilities*

Based on a cost-benefit analysis and the available Darwin budget for post-harvest rice processing equipment, we concluded that improved rice milling, drying and storing would be more economically more beneficial for INFA farmers to move up the value chain and increase revenues then to introduce rice flour production. High quality rice flour mill prices have increased beyond Darwin budget. Please see the “Report\_Business plan for Organic rice\_Indawgyi” for more detail on the cost-benefit analysis.

We identified together with farmers that the main problem for organic rice marketing was the quality of the rice. Market price gain can be achieved by improving the quality of the rice. The reasons for the low quality of milled rice are both the low quality of rice mills in Indawgyi and also the too high moisture content of the paddy. This causes a high proportion of broken rice and also an increased pest problem with rice weasels. Therefore, Darwin investment for post-harvest rice processing facilities was best invested in a high quality rice mill. Training has also been provided for best practices in rice drying and storage. With additional funding FFI plans to further improve drying and storage facilities to further improve rice quality and prevent pests.

During the reporting period, the project team conducted procurement of a quality rice mill and a safe/ dry building for the rice mill. The building is under construction and will be completed by May. The rice mill will be installed after the building is completed.

### 3.10 *Procure rice mill*

Instead of a flour mill, post-harvest rice processing equipment has been changed to the procurement of a white rice mill

### 3.11 *Deliver training on flour mill use and maintenance*

The project will train INFA farmers after the rice mill is completed.

### 3.12 *Develop and agree with INFA the detailed 3 year business plan*

The detailed business plan for INFA is currently under development.

### 3.14 *According to the business plan, identify the priority investments/ infrastructure/ capacities required and support INFA and Shan Maw Myae to address these*

According to Business plan which developed in 2018-2019 for the organic rice in Indawgyi region, priority investments and infrastructure were identified as rice mill for INFA to produce organic rice.

### 3.15 *According to business plan, establish local sales distribution systems for rice, rice flour*

With the support of the project, INFA members milled the rice at lease rice mill and distribution the organic rice within Indawgyi area. Project conducted initial discussion with a buyer from Yangon to cooperate with INFA and develop quality standard for Indawgyi rice. The plan is to develop plan for regional market for next 4 years first before looking for international market.

### 3.16 *Support INFA to produce and sell rice and rice flour*

Project staff together with INFA prepared rice distribution plan in the region during the rice harvesting time in November 2019 and planned to develop market in Mandalay and

Yangon. Indawgyi organic rice is available at weekly organic market in Mandalay since January 2020.

- 3.17 *Base and end line surveys on household incomes and expenditures related to farming*  
No activity in this reporting period. End line survey will be conducted in Year 3.

**Output 4. At least 1,000 households (c. 5,400 people) participate in community waste collection and safe disposal; at least 200 households (c.1,000 people/ approx. 50% of all HH in flood prone areas) benefit from improved sanitation systems in flood prone areas with eutrophication problems**

- 4.1 *Develop a core team between Inn Chit Thu and Wetlands Work. Develop a HandyPod training programme for construction training and sanitation marketing using informational materials, presentations, workshops, field work, and demonstration sites.*  
Handy pod installation training was conducted in Lonton by Pothea, sanitation expert from wetland work in August. Members of Innchtithu local association and local partner team (group of 3 persons from Lonton) received the training. Altogether 50 handy pods were set up in three villages at priority households.
- 4.2 *ID and train local business operators from the target villages who serve the HandyPod's supply side elements*  
Local partner team from Lone Ton (a group of 3 people) already trained for handy pod setup method and 50 individual of handy pod has been constructed in 3 villages. The setup will continue to additional 3 villages in east part of Indawgyi. The design was provided by Wetland work and some modification were made in order to fit the requirement in Indawgyi.
- 4.3 *Organise a Sanitation Raffle (lucky draw) for flood-prone households in each target village involving various leadership levels; promotion, prizes, events coordination*  
This activity was planning to conduct in Feb and March 2020. Due to COVID-19 crisis, it was postponed until COVID-19 was over.
- 4.4 *Install winning HandyPods in dry season*  
This was planned to begin in March 2020. Due to COVID-19 crisis, it was postponed until COVID-19 was over.
- 4.5 *Provide faecal sludge management guidance and demonstrations*  
The guidelines for usage and maintenance of handy pod was developed in local language and distributed to the handy pod installed households. The follow up meeting with handy pod users was planned in March 2020 together with Wetlands Work. Due to COVID-19 crisis, it was postponed until COVID-19 was over.
- 4.6 *Monitor and evaluate initial target village strategies; adapt as needed*  
No activity during this period.
- 4.7 *Explore and specifically define broader scale up of sanitation activities around Lake Indawgyi*  
No activity during this period.
- 4.8 *Establish baseline information: nearshore pathogens (E. coli) and algal mat density in Year 1 wet and dry season*  
In August 2019, wetland work collected algae and water sample from Loneton and examined the level of E.coli at lab in Cambodia.
- 4.9 *Develop waste management awareness materials*  
Posters on the solid waste awareness were produced and erected at installed in public area like markets and near Shwe Myit Zu pagoda in six villages.
- 4.10 *Implement waste management awareness campaign*



One day awareness campaign for the waste management was conducted at Nan Mon village together with local authorities, high school and villagers in February 2020. More than 100 people joined the campaign.

**4.11 Facilitate establishment of village-based waste management systems, identify supply chain for recycling materials**

The project provided financial support to Parami group to extend their activity to seven villages: Maing Naung, Sanwinkone/Innthar, Hepar, Shwe Let Pan/Lel Pon Lay, Ma Mon Kaing, Hepu and Nant Mauk Kan (3 villages in Year 1 and 4 villages in Year 2). Since December 2018, the waste truck is continue collecting waste of those three villages once a week. Operational costs are financed by voluntary donations from local users. Please find detail activities in the "Report\_Waste Management in Indawgyi(2016-2019)".

**4.12 Establish village land fill sites for safe disposal of waste**

The project supported Parami group to assist group formation in Hepar and Hepu in order to manage waste within their villages. In February 2020, Hepar established their own dump site outside of the villages with formal approval from village authorities. Hepu village also setup waste collection system within their villages start from November 2019.

**4.13 Provide support to the new waste collection system**

Same as 4.11

### **3.2 Progress towards project Outputs**

Project activities in Output 1, 2 and 4 and most of the activities in Output 3 were progressing well in Year 2.

In output 3, activity 3.9 was being delayed so that related activities 3.10 and 3.11 were being delayed too. Activity 3.9 is "Set up and prepare for physical installation of flour mill". Originally the project provided to support INFA to setup the rice flour mill to produce rice flour as value added products. However, based on cost-benefit analysis we concluded that improved rice milling, drying and storing would be more economically beneficial for INFA farmers to move up the value chain. We identified together with farmers that the main problem for organic rice marketing was the quality of the rice. Market price gain can be achieved by improving the quality of the rice.

For those reason, we implemented the procurement process of rice mill (activity 3.10). The procurement for rice mill and associated equipment and building proved much more time consuming than originally planned because of the complexity of sourcing the mill, dryer and construction of suitable foundations for everything. Sourcing the mill necessitated travel to several suppliers in different parts of the country and contracting of outside technical support to devise and compare technical standards for the equipment. The procurement is nearly completed and the activity will be completed in early Year 3. Activity 3.11 (Deliver training on mill use and maintenance) will also carried in Year 3.

### **3.3 Progress towards the project Outcome**

Participatory management systems, sustainable natural resource use and improved sanitation bring biodiversity benefits to the Indawgyi Lake Biosphere Reserve and livelihoods and health benefits to more than 10,000 residents.

**a) By the end of 2019, a collaborative management committee for Indawgyi Lake Biosphere Reserve will be established and operating**

A biosphere reserve management committee has been established at the beginning of the project at Mohnyin Township, Mohnyin district and Kachin state level. The main collaborative management committee is at district level. Annual collaborative BR district committee

meetings with all relevant stakeholders have been conducted in both 2018 and 2019 including CSO representatives and community representatives to discuss key management issues. Since the 2019 meeting, annual work plans are also prepared in advance, reviewed and discussed at the meeting. Since the park warden of Indawgyi Biosphere Reserve is a secretary of township level management committee, he presented the quarterly workplan and activities updates at regular township level meetings.

- b) *Number of resident water-birds is stable or increasing throughout the project period (including increasing number of Sarus cranes, VU, feeding in the paddy fields as an indicator species)*

The mid-winter counts and monthly counts were conducted by the ornithologists from the Indawgyi wildlife sanctuary with support from FFI and Inn Chit Thu to monitor the water bird population in the lake and surrounding wetlands. Based on mid-winter count (Asia Waterbird Census) in 2019 and 2020, number of waterbird species and population are stable.

- c) *At least 200 farming households (c.1,000 people, 50:50 male/ female) adopt organic farming practices near lakeshore areas with eutrophication problems, by the end of the project*

In 2018, 106 farmers from 11 villages and in 2019 additional 99 farmers followed the organic farming practice: The Myanmar Organic Farming Participatory Guarantee System (PGS) is now applied by a total of 205 farmers for mainly for rice, peanut and soy bean. Of these 205 farmer 157 have already received PGS organic certification in February 2020

- d) *By December 2020, at least 20 forest user-groups representing 1,000 households (50 households per forest group) adopt community forestry, agro-forestry practices, and establish wood lots*

Project facilitated 9 forest user groups in Year 1 and additional 11 more forest user group in Year 2 together with Indawgyi Development and Conservation Association to establish community forestry and agroforestry in the designated buffer zone of the biosphere reserve. A total of 981 households are members of 20 FUGs.

- e) *By December 2020, at least 1,000 people (200 households/ approx. 50% of all households in flood prone areas) benefit from improved sanitation systems in the flood prone areas with most severe eutrophication problems*

The project was able to set up 50 handy pod, sanitation system at three villages. Another 50 were planned to be set up in March but it was delayed due to COVID-19 crisis. After the crisis, the project targets to complete additional 150 handy pods at 3-7 villages in 2020.

- f) *At least 6 villages establish community-based waste management systems; 5,400 people (1,000 households) benefit from waste collection, recycling and safe disposal, by project end*

Three villages in Year 1 and additional seven villages in Year 2 were introduced to community-based waste management system. Villages groups were collaborated with Parami and Innchitthu to implement waste management awareness and to establish waste collecting system. Below table shows the list of the villages where community-based waste management system established by the project.

Table. Villages where community-based waste management system established

Sr.	Village Name	Total households
1	Maing Naung	1087
2	Sanwinkone/Innthar	336
3	Hepar	220
4	Shwe Let Pan/Lel Pon Lay	155

5	Ma Mon Kaing	359
6	Hepu	285
7	Nant Mauk Kan	465

### 3.4 Monitoring of assumptions

Overall the assumptions made are still valid;

- Myanmar government continues to support multi-stakeholder engagement in protected area management.
- The security situation in Indawgyi remains safe. There has been no conflict around the project area during the reporting period.
- Myanmar government continues to support the issuance of community forestry licences in buffer zones of protected areas. The new protected area and wildlife law approved in 2018 states that local community groups can apply for community forestry licences in buffer zone of protected area.
- The market demand for value-added organic/ gluten-free rice products (rice flour) continues to grow.
- Improvements in waste management and sanitation lead to a decrease in water-borne disease and infection.
- Major natural disasters do not take place within the project sites and period that undermine the access to or availability of forest and forest products.
- Monsoon and overgrowth removes unused illegal logging roads during the project period, as is usual.
- The domestic and international markets for organic rice and gluten free products continues to grow during the project period
- The ability of Myanmar to export to international markets does not alter significantly during the project period.
- SMM remain financially stable and committed to developing the Indawgyi supply chain. The project conducted several meeting with SMM for the collaboration of supply chain.
- If only organic agricultural inputs are in use then the chemical inputs and run off will proportionally reduce.
- Local communities willing to change behaviour in favour of improved sanitation and waste management. The initial assessment showed the household members which live on the lake shore are willing to improve the sanitation system.
- There are no significant lakeside developments in this project period that cause an additional source of untreated waste pollution to the lake. There is no development project on the lake site during the current government period.

### 3.5 Impact: achievement of positive impact on biodiversity and poverty alleviation

- 157 farmers received the PGS organic certificate in February 2020 and Indawgyi organic rice has already been distributed in local, Mandalay and in Yangon markets.
- The member of patrol units for both forest and lake patrols have significantly improved their capacity to control illegal activities particularly the fishery department improved their skills for patrolling and law enforcement operations.

- People from seven villages increased knowledge on waste management and are actively participating in the waste collection.
- Local authorities in Indawgyi area have approved the handy pod sanitation program, which will improve the water quality and make a contribution to improved health (reduced e-coli bacteria in nearshore lake water).
- More than 700 households became members of the forest user groups and they improved their knowledge on the forest protection.

#### **4. Contribution to the Global Goals for Sustainable Development (SDGs)**

At impact level, this project will support SDG 15 by protecting and sustainably managing forests and associated biodiversity through collaborative protected area management contributing to Targets 15.1, 15.2, 15.5, 15.7.

Additionally, through the approach and activities, this project will contribute to Target 1.1 by decreasing the number of people in living on less than \$1.25 per day through the introduction of post-harvest processing and production of value-added organic rice products that secure premium prices and for which market demand is increasing. Target 1.4 will be address by securing legal access rights to forest and wetland resources through implementing newly designated buffer zones.

The project will contribute to Target 2.4, by implementing resilient agricultural practices – organic rice and dry-seasons crops - that maintain ecosystem services, and that mitigate an emerging threat to land and water quality, namely chemical agricultural inputs. Women will be actively involved in management and this project will ensure women take meaningful decision making roles, thereby contributing to Target 5.5.

Promoting organic agriculture will mitigate the use of chemicals, thereby safeguarding and improving water quality, contributing to Target 6.3. Addressing water and sanitation needs around the lakeside, will also contribute to Targets 6.2, 6.6 and 6b.

The project has contributed to sustainable production by promoting organic inputs and achieving organic certification, thereby positioning natural resources explicitly as the economic asset on which this economic activity depends. This decouples economic growth from environmental degradation, directly contributing to Target 8.4.

During the reporting period, the project contributed to Target 8.4 because of the project's support to farmers to achieve organic certification.

#### **5. Project support to the Conventions, Treaties or Agreements**

Project supported 205 rice farmers to establish sustainable rice cultivation in the Indawgyi area to reduce the impact to the lake.

Sustainable rice cultivation is a particular area of focus for the CBD in Myanmar, recognizing the threats and opportunities posed by the industry. Target 7.1 is that 'By 2020, SRI and other forms of environmentally friendly rice production have been implemented in 10% of rice paddy area'. This project, through output 3, directly addresses this target and both supporting actions.

The NBSAP aims for improved management of protected areas. The project contributed to improved collaborative management of Indawgyi biosphere reserve, including collaborative patrolling and law enforcement.

#### **6. Project support to poverty alleviation**

The project is supporting poverty alleviation by improving the rice cultivation system from non-organic agriculture to organic agriculture to increase income from their products. The project also supported the market development for their product to link with the premium market for their

quality products. Indawgyi brand was introduced in the National market for not only rice but also other cash crops and agriculture products of Indawgyi. The beneficiaries will be the farmers in the project area. The project also support Community Forestry user group to generate additional income via agro forestry and support farm landless families to get regular income by pig raising and poultry farming.

During the reporting period, the project supported INFA to distribute and market organic rice in the Indawgyi region and Yangon markets for a small premium price, while reducing the input costs for rice production, contributing to poverty alleviation. The project also create a link between home gardening group and Mandalay organic market in order to get market for organic vegetable at premium price and contributing to poverty alleviation.

## 7. Consideration of gender equality issues

Both women and men are key stakeholders in all aspects of the project. Men and women had equal opportunities to participate in trainings and meetings. The project also encouraged women to become members of the community forestry and farmer groups. In the newly formed forest user groups, 15% of total members are women. One of the groups named "Green Land" who produce value-added products has women-only membership.

However, in recognition of gender bias in activities such as CF, FFI organized a gender equality training workshop in Year 2, targeting FFI project staffs and members of CSOs working in the Indawgyi area. The training developed guidelines for participation of women across all project activities, and are now being applied.

## 8. Monitoring and evaluation

The project was monitored and evaluated based on the project work plan and the agreed measurable indicators (Annex 1 and 2). There have been no changes to the M&E plan during the reporting period.

## 9. Lessons learnt

- The significant achievement of the project for this reporting period is that 157 farmers received Myanmar PGS organic certification for their rice, vegetables, fruit trees and tea, and secondary crops (soya beans/ peanuts).
- Although there were 50 handy pods installed in three villages, the local authority from another three villages were pleased to approve the handy pod household sanitation system.
- The farmers have increased capacity for growing and post harvesting processing (rice drying and milling) to produce a quality product for the export market. However, in this growing season, INFA and farmers facing with draught issue for the crops. Therefore, project and farmers should consider impact of climate change for future growing season.

## 10. Actions taken in response to previous reviews (if applicable)

*Comment 1: Please comment on the management and coordination of the various partnerships. The Application details a partner – Shan Maw Myae (an organic product trading company), which is not mentioned in AR1. Is there a reason for this? Have there been any particular challenges with the partnerships? And if so, how were these met?*

The initial relationship with Shan Maw Myae has been based on 'trading of organic rice flour' rather than milled rice. Based on a cost-benefit analysis and the available Darwin budget for post-harvest rice processing equipment, we concluded that improved rice milling, drying and storing would be more economically more beneficial to farmers to move up the value chain and increase revenues then to introduce rice flour production.

We identified together with farmers that the main problem for organic rice marketing was the quality of the rice which resulted in low prices. The reasons are both the low quality of rice mills in Indawgyi and also too high moisture content of the paddy. This causes a high proportion of broken rice and also increased pest problems with rice weasels. Therefore Darwin investment for post-harvest rice processing facilities was best invested in a high quality rice mill. Training has also been provide for best practices in rice drying and storage. With additional funding FFI will also improve drying and storage facilities to further improve rice quality and prevent pests.

As Shan Maw Myae was only interested to partner for the production of rice flour, the relationship was no longer relevant to them. Instead, FFI provided training to INFA to develop a domestic market for organic rice with a diverse range of buyers in Myitkyina, Mandalay and Yangon, as well as the Indawgyi region. In 2020 FFI will continue to improve marketing of organic rice.

*Comment 2: Please revise (and present) an updated implementation timeline – ensuring that Activity descriptions and numbering follow that of the latest version of the logframe.*

The revised implementation timeline was attached with this report.

*Comment 3: Clarify the roles of and the relationship between the Biosphere reserve Stakeholder Committee and the BR Management Committee.*

The naming is due to mistranslation from Myanmar language; in fact these two committees are same. The committee includes the representatives from relevant government departments of General Administration Department, Forest Department, Fishery Department, Farm Land and Statistic Department, Police department and Indawgyi Biosphere Reserve Authority, and representatives from CSOs.

*Comment 4: The logframe would benefit from some minor ‘tweaking’: consider amalgamating some of the activities; and SMARTen those indicators which are not currently time-bound; consider re-wording outputs 3 and 4 (move targets to indicators); Consider an Outcome-level indicator to capture income benefit to farmers of adopting organic rice production*

Outputs 3 and 4: FFI requested to change in Output 3.

We requested to do changes as below:

Output:

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<b>Output 3</b> Organic rice farming and value-adding practices result in certified organic products that provide income to at least 200 households and protect wetland biodiversity	3.2 INFA operated rice mill/ rice flour mill established and processing brown rice/ rice flour by December 2019	3.2 Rice mill/ rice flour mill (INFA equipment register) records showing volumes processed	The domestic and international markets for organic rice and gluten free products continues to grow during the project period
<b>Request to change as below</b>	3.2 INFA operated rice mill established and processing milled rice by December 2020	3.2 Rice mill (INFA equipment register) records showing volumes processed	The domestic and international markets for organic rice products continues to grow during the project period

Activities:

3.9 Set up and prepare for physical installation of flour mill
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3.10 Procure flour mill
3.11 Deliver training on flour mill use and maintenance
3.12 Develop and agree with INFA and Shan Maw Myae the detailed 3 year business plan
3.14 According to the business plan, identify the priority investments/ infrastructure/ capacities required and support INFA and Shan Maw Myae to address these
3.15 According to business plan, establish local sales distribution systems for rice and rice flour
3.16 Support INFA to produce and sell rice and rice flour

## Request to Change:

3.9 Set up and prepare for physical installation of rice mill
3.10 Procure rice mill
3.11 Deliver training on rice mill use and maintenance
3.12 Develop INFA detailed 3 year business plan
3.14 According to the business plan, identify the priority investments/ infrastructure/ capacities required and support INFA to address these
3.15 According to business plan, establish local sales distribution systems for rice
3.16 Support INFA to produce and sell rice

*Comment 5: Ensure financial information is provided, as requested by the AR template.*

Financial information is provided in the Annual Report.

*Comment 6: A brief description of how the project fits into (if it does) FFI's on-going programme around Lake Indawgyi would be useful*

FFI is implementing conservation and development activities in support of Indawgyi Wildlife Sanctuary management plan with two key government partners – the Forest Department and Department of Fisheries – and several CSOs including Indawgyi Environment and Development Association (IEDA), Mohnyin Natural Greening and Development Association (MNGDA), Indawgyi Natural Farming Association (INFA) and Inn Chit Thu ecotourism and environment group. After Indawgyi became a UNESCO Biosphere Reserve, the program focussed increasingly on sustainable development in the region, along with conserving the natural resources of the lake and its watershed forests. Key projects include expansion and improvement of community forestry and agroforestry in the buffer zone of the Biosphere Reserve, development of sustainable and biodiversity-friendly agriculture and value-added agriculture products, management of solid waste and liquid waste, sustainable fishery development, and conservation awareness. Throughout the programme we seek to build capacity for Indawgyi biosphere reserve authority, fishery department and local CSOs, while providing technical and financial support they need to implement the biosphere management plan. The Darwin Initiative is currently the main donor for these four thematic areas.

## 11. Other comments on progress not covered elsewhere

N/A

## 12. Sustainability and legacy

Sustainability has been built from the first year into the project approach through our focus on capacity building for local partners and by supporting local communities with the implementation of sustainable development interventions.

## 13. Darwin identity

All project activities with communities, partners and government stakeholders convey that the activities are supported by the Darwin Initiative, including publications, training materials and workshops resources featuring the Darwin Initiative logo.

## 14. Safeguarding

FFI's **Safeguarding Children and Adults at Risk Policy & Procedure** was developed in December 2014 and last updated in March 2018. The policy applies to Members of Council and its sub-committees, FFI employees, temporary staff provided through agencies, volunteers and interns, contractors, consultants, service providers and any third parties who carry out work on behalf of FFI, in partnership with FFI or in conjunction with FFI. The policy demonstrates the organisation's commitment to safeguarding children and adults at risk and to complying with the United Nations Convention on the Rights of the Child; confirms the arrangements and procedures in place to safeguard children and adults at risk, including FFI's code of conduct; and provides clear guidance on how to raise, and how FFI responds to, concerns and allegations regarding the maltreatment of children and adults at risk. The policy expressly states that FFI does not tolerate sexual exploitation and abuse of any kind.

FFI's **Anti-bullying and Anti-harassment Policy** was developed in March 2018. The policy applies to Members of Council and its sub-committees, FFI employees, temporary staff provided through agencies, volunteers and interns, contractors, consultants and any other third parties who carry out work on FFI's behalf. The stated purpose of the policy is to ensure a safe, welcoming and inclusive working environment, which is free from intimidation, threats, discrimination, bullying or harassment; to communicate clearly FFI's zero-tolerance of any form of bullying or harassment; to define the terms 'bullying' and 'harassment' and provide examples, so that there is a clear understanding of the types of conduct that are prohibited; to communicate the importance of reporting incidents of bullying and harassment; and to communicate the procedures in place to manage incidents of bullying and harassment. The policy expressly states that bullying or harassment of any kind against a person or group of people, whether persistent or an isolated incident, will not be tolerated under any circumstances.

FFI's **Whistleblowing Policy** was developed in June 2013 and last updated in December 2019. The policy applies to FFI employees. The stated purpose of the policy is to encourage employees to report suspected wrongdoing in the organisation as soon as possible, in the knowledge that their concerns will be taken seriously and investigated as appropriate, and that their confidentiality will be respected. It provides guidance on how to raise those concerns and aims to reassure employees that they can raise genuine concerns in good faith without fear of reprisals, even if they turn out to be mistaken.

FFI's partner due diligence procedures include checking whether any safeguarding concerns have arisen with the partner concerned and the Safeguarding Children and Adults at Risk Policy & Procedure forms part of contracts and agreements with third party contractors and sub-grantees. We are also currently researching LMS platforms (Learning Management Systems) which would enable online training in policies & procedures.



We monitor updates in Government and Charity Commission guidance and review our policies and procedures accordingly.

No safeguarding issues have been reported during the reporting year.

In terms of **social safeguards**, FFI has publically available position papers on our approach to **Free, Prior and Informed Consent Position, Gender in Conservation, Displacement and Restrictions on Access to Resources** and **Conservation, Livelihoods and Governance** (links below). Our specialist Conservation, Leadership and Governance team support regional FFI staff and partners to take a holistic, people-centred approach to biodiversity conservation, and to ensure all project activity is strongly aligned with these principles.

[https://cms.fauna-flora.org/wp-content/uploads/2019/06/FFI\\_2019\\_Position-on-free-prior-and-informed-consent.pdf](https://cms.fauna-flora.org/wp-content/uploads/2019/06/FFI_2019_Position-on-free-prior-and-informed-consent.pdf)  
<https://www.fauna-flora.org/approaches/livelihoods-governance/gender>  
[https://cms.fauna-flora.org/wp-content/uploads/2017/11/FFI\\_2013\\_FFIs-position-and-approach-to-conservation-livelihoods-and-governance.pdf](https://cms.fauna-flora.org/wp-content/uploads/2017/11/FFI_2013_FFIs-position-and-approach-to-conservation-livelihoods-and-governance.pdf)  
[https://api.fauna-flora.org/wp-content/uploads/2017/11/FFI\\_2016\\_Displacement-and-restrictions-on-access-to-resources.pdf](https://api.fauna-flora.org/wp-content/uploads/2017/11/FFI_2016_Displacement-and-restrictions-on-access-to-resources.pdf)

## 15. Project expenditure

**Table 1: Project expenditure during the reporting period (1 April 2019 – 31 March 2020)**

Project spend (indicative) since last annual report	2019/20 Grant (£)	2019/20 Total Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items (see below)				
Monitoring & Evaluation (M&E)				
Others (see below)				
<b>TOTAL</b>				

## Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2019-2020

Project summary	Measurable Indicators	Progress and Achievements July 2019 - March 2020	Actions required/planned for next period
<p><b>Impact</b></p> <p>The collaborative management and ecosystem services approach achieves effective biodiversity conservation and improved livelihoods in Indawgyi. Lessons learned are shared in Myanmar and through the global network of Biosphere Reserves.</p>		<p>In the first year of the project FFI facilitated an MoU between the Biosphere Reserves of the state Branden Burg in Germany with Indawgyi BR. The German BR partners are all wetland sites (Elbe River, Spreewald, Schorfheide-Chorin). A regular annual exchange and training program facilitated by FFI has been established with 2 exchange visits per year. In Year 1 the focus of the exchange visit was on BR governance and management, environmental education and water quality monitoring, in year 2 on sustainable agriculture and communal waste management in BRs. Participants included BR committee members and CSO stakeholder representatives.</p> <p>The Indawgyi BR program has been presented at the UNESCO Biosphere Reserve COP at Palembang in the first project year 1.</p> <p>The Indawgyi BR program has been shared at the national wetland committee meeting in year 1. As a result of this meeting the national wetland committee supports the development of Myanmar's first riverine Biosphere Reserve gazettelement for the</p>	

		<p>central Ayyeyarwady river basin based on lessons learned from Indawgyi BR.</p> <p>The Indawgyi BR program lessons learned has been shared at the Indoburma Ramsar Regional Initiative Meeting in Siem Riep in Year 2.</p> <p>At the beginning of the project FFI participated in regional and national consultation meetings for the new Law on Conservation of Biodiversity and Protected Areas. Biosphere Reserves and collaborative management approaches have been included, which were absent in the 1994 wildlife and protected areas law,</p>	
<p><b>Outcome</b></p> <p>Participatory management systems, sustainable natural resource use and improved sanitation bring biodiversity benefits to the Indawgyi Lake Biosphere Reserve and livelihoods and health benefits to more than 10,000 residents.</p>	<ol style="list-style-type: none"> <li>1. By the end of 2019, a collaborative management committee for Indawgyi Lake Biosphere Reserve will be established and operating</li> <li>2. Number of resident water-birds is stable or increasing throughout the project period (including increasing number of Sarus cranes, VU, feeding in the paddy fields as an indicator species)</li> <li>3. At least 200 farming households (c. 1,000 people, 50:50 male/ female) adopt organic farming practices near lakeshore areas with</li> </ol>	<ol style="list-style-type: none"> <li>1. The first meeting of a collaborative management committee was conducted in 2018 and second meeting was in 2019. The park warden of Indawgyi Biosphere Reserve who is a secretary of the committee prepared workplan and updated the progress to the committee.</li> <li>2. Based on the annual waterbird census data in 2019 and 2020, the number of resident birds is stable.</li> <li>3. 106 farmers in Year 1 and 99 farmers in Year 2, total of 205 farmers adopted organic farming practices. A total 157 were PGS</li> </ol>	<p>Key actions planned for next period:</p> <ol style="list-style-type: none"> <li>1. At least one meeting will be organized in Year 3.</li> <li>2. Continue water bird census in Year 3. The census on Sarus crane will be organized in Nov/Dec 2020.</li> <li>3. Together with INFA, awareness campaign will be conducted again for more farmer to follow the organic farming practice.</li> <li>4. 150 sanitation systems will be set up in Year 3.</li> </ol>

	<p>eutrophication problems, by the end of the project</p> <ol style="list-style-type: none"> <li>4. By December 2020, at least 20 forest user groups representing 1,000 households (50 households per forest group) adopt community forestry, agro-forestry practices, and establish wood lots</li> <li>5. By December 2020, at least 1,000 people (200 households/ approx. 50% of all households in flood prone areas) benefit from improved sanitation systems in the flood prone areas with most severe eutrophication problems</li> <li>6. At least 6 villages establish community-based waste management systems; 5,400 people (1,000 households) benefit from waste collection, recycling and safe disposal, by project end</li> </ol>	<p>Myanmar organic certified in February 2020</p> <ol style="list-style-type: none"> <li>4. Nine forest user groups (FUGs) in Year 1 and 11 FUGs in Year 2 were formed by the project together with Indawgyi Development and Conservation Association.</li> <li>5. 50 sanitation systems set up in Year 2 at three villages.</li> <li>6. Community-based waste management was introduced at seven villages in Year 1 and 2. Total of 2907 households participated in community-based waste management. The target has been exceeded.</li> </ol>	<ol style="list-style-type: none"> <li>5. 2 to 3 more villages will be introduced community-based water management system in Year 3.</li> </ol>
<p><b>Output 1.</b> A decentralised and collaborative management committee and mainstreamed ecosystem services approach places the Indawgyi Lake Biosphere Reserve under management systems that respect integrated development and biodiversity needs</p>	<ol style="list-style-type: none"> <li>1.1 Collaborative multi-stakeholder Biosphere Reserve Management Committee operating by 2018</li> <li>1.2 The Biosphere Reserve Management Committee is trained in collaborative protected area management by February 2019 and starts implementing integrated conservation and sustainable development plans</li> <li>1.3 By end of the project improved law enforcement through collaborative patrolling; illegal commercial logging and firewood extraction, forest and</li> </ol>	<ol style="list-style-type: none"> <li>1. Second township level multi-stakeholder BR meeting was organized in October 2019 to update the 2018-19 conservation intervention and to discuss Biosphere Reserve operational plan 2019-2020.</li> <li>2. In 2018 FFI facilitated a 1 week study tour/ training program for 6 BR management committee members (government agency representatives) at German Biosphere Reserves in Brandenburg State. In 2019 6 BR CSO representatives were trained in collaborative protected area management as part of study tour to Germany. An additional study tour/ training program was planned for April 2020, but had to be postponed due to Covid 19 travel restrictions.</li> <li>3. Due to intensive training and refreshment training, the law enforcement team improved their capacity and implement regular collaborative lake and forest patrols and law enforcement operations.</li> </ol>	

	<p>wetland encroachment reduced by 50% against baseline.</p> <p>1.4 By December 2020, all BR stakeholder committee members exhibit improved environmental knowledge and attitudes against baseline knowledge, attitude and practice survey.</p>	<p>4. No activity for this output yet. This activity will be conducted before the end of 2020 to compare with the Knowledge Attitude Behaviour baseline surveys conducted by Matthias Markolf.</p>	
<p>Activity 1.1 Facilitate regular meeting of the Biosphere Reserve Indawgyi management/ stakeholder committee (quarterly)</p>	<p>Second District level Biosphere Reserve management meeting was organized in October 2019. The government decided to hold annual meetings at district level (not quarterly)</p>	<p>Meeting will be one time a year. However, the secretary of the committee, the Indawgyi Biosphere Reserve Park warden regularly reports activity update and workplan to the committee members.</p>	
<p>Activity 1.2 Facilitate regular meeting of the Indawgyi civil society network (bi-annual)</p>	<p>Two meetings in Year 2.</p>	<p>Two more meeting will be in Year 3.</p>	
<p>Activity 1.3 Facilitate regular meetings of law enforcement agencies (forest department, Indawgyi wildlife sanctuary/ biosphere reserve management authority, fisheries department police.</p>	<p>Forest department, fishery department and police occasionally met to prepare law enforcement plan.</p>	<p>Continue this activity.</p>	
<p>Activity 1.4 Recruit and train local informant network</p>	<p>Completed this activity in Year 1.</p>	<p>No activity.</p>	
<p>Activity 1.5 Recruit local community rangers</p>	<p>Completed this activity in Year 1.</p>	<p>No activity.</p>	
<p>Activity 1.6 Establish two collaborative patrol units (5 pax each), including wildlife sanctuary rangers and community rangers for forest patrols</p>	<p>Completed this activity in Year 1.</p>	<p>No activity.</p>	
<p>Activity 1.7 Establish collaborative lake patrol team (fisheries department, WS, community ranger)</p>	<p>Completed this activity in Year 1.</p>	<p>No activity.</p>	
<p>Activity 1.8 Provide basic field equipment (GPS/ cameras/ field gear)</p>	<p>Additional 2 cyber tracker devices were provided to forest patrol team in Year 2.</p>	<p>No activity.</p>	
<p>Activity 1.9 Provide initial SMART patrolling training to collaborative patrol units, on the job training first 3 month</p>	<p>Completed in Year 1.</p>	<p>No activity.</p>	

Activity 1.10 Provide SMART refresher training	Completed in Year 1. But Cyber tracker training was organized for the patrol team.	No activity.
Activity 1.11 Monthly collaborative SMART patrols, operate informant network	Ongoing activity.	Continue in Year 3.
Activity 1.12 Annual UAV monitoring of encroachment and illegal logging areas	No activity	UAV monitoring will be conducted in June 2020 if covid-19 is over and again in last week of March 2020.
<p><b>Output 2</b></p> <p>Community forestry and agroforestry in designated buffer zones of Lake Indawgyi Biosphere Reserve reduce deforestation and forest degradation, while maintaining access to essential natural resources</p>	<p>2.1. At least 20 community forestry user groups established representing &gt;1,000 households (c. 5,400 people, app. 50 households per group) by December 2018</p> <p>2.2. At least 20 community forestry management plans established by December 2019</p> <p>2.3. At least 20 wood lots established by December 2020</p> <p>2.4. At least 20 community forestry licences issued by the end of the project</p> <p>2.5. At least 50% of forest user group members utilise fire-wood saving or electric stoves.</p> <p>2.6. The number of observable illegal logging roads in the project areas is reduced by at least 50% from project baseline to project end (post-monsoon)</p>	<ol style="list-style-type: none"> <li>1. Nine groups (549 households) in Year 1, 11 groups in Year 2 (442 households). Currently total 981 households are members of forest user groups.</li> <li>2. Initial meetings for preparation of management plan was carried out in Year 2. The management plan will be prepared in Year 3.</li> <li>3. Nine FUGs established in Year 1 planted seedlings in their community forest area in Year 2.</li> <li>4. In the process of applying community forestry licenses.</li> <li>5. Electrical power is now available in most villages and the project has promoted FUGs' members to use electric stoves. Before the end of 2020 FFI will undertake an assessment of the uptake of electric and firewood saving stoves.</li> <li>6. Five main logging roads were blocked to stop logging tracks go into the forest area in Year 1 and 2. The total impact will be measured at the end of the project end.</li> </ol>
Activity 2.1. Establish forest user groups	Eleven groups in Year 2.	
Activity 2.2 Train forest user groups in forest inventory and forest management planning	Basic forest management was trained in Year 2.	Training on Forest inventory and forest management will be conducted in Year 3 again.

Activity 2.3 Forest inventory and forest management planning	Forest inventory was conducted at nine FUGs in 2019. Based on the inventory data, the community forestry management plan was discussed and planned.	Inventory for 11 FUGs was planning to conduct in Year 3.
Activity 2.4 Train FUGs in tree nursery development	Training for 20 FUGs in Year 2.	One more training will be organized in Year 3 for newly formed FUGs.
Activity 2.5 Establish and manage nurseries operational	Twenty FUGs established the nursery in Year 2.	Same activity in Year 3.
Activity 2.6 Train FUGs in reforestation/ agroforestry techniques	Agroforestry for tea planting was conducted.	Organize training again in Year 3 for different crops.
Activity 2.7 Establish woodlots and agroforests	Nine FUGs established woodlots in Year 2.	Thirteen will be in Year 3.
Activity 2.8 Facilitate community forestry certification?	Initial meetings with FUGs and forest department were done in Year 2.	Prepare application for the community forestry certificates in Year 3.
<b>Output 3</b> Organic rice farming and value-adding practices result in certified organic products that provide income to at least 200 households and protect wetland biodiversity	3.1 By May 2019, farmers representing 200 households, are trained in organic farming rules and concept of group certification 3.2 INFA operated rice mill/ rice flour mill established and processing brown rice/rice flour by December 2019 3.3 By December 2019, at least 200 households (c.1,000 people) in the Indawgyi Lake Biosphere Reserve are using only organic agricultural inputs and zero chemical fertilisers and chemicals 3.4 By December 2020, at least 70% of target farmers have achieved organic certification by national and/or international standards	<ol style="list-style-type: none"> <li>1. 205 farmers were training in Year 2 for the organic farming rules and concept of group certification.</li> <li>2. Rice mill is under procurement process and will be installed in Year 3. The project started to support the development of market links for organic rice in Year 2.</li> <li>3. 205 farmers followed the organic agriculture rules in Year 2.</li> <li>4. In February 2020, 157 farmers received PGS organic certificates for 384.5 ha and it is in the audit process by Control Union for EU certificate.</li> <li>5. The project will conducted the assessment in last quarter of Year 3.</li> <li>6. The project will conducted the assessment in last quarter of Year 3.</li> <li>7. Annual bird count will be conducted again in Year 3. The water quality was tested in Year 2 (report in prep,). The water quality test will be done again in Year 3.</li> </ol>

	<p>3.5 Household expenditure on non-organic agricultural inputs per unit yield has decreased from project baseline to endline</p> <p>3.6 Households are achieving a higher net profit per unit yield as a result of value-adding activities between project start and end (expected profits and income increases to be confirmed during business case development in Yr1)</p> <p>3.7 Number of resident water-birds is stable or increasing (including the number of Sarus cranes feeding in the paddy fields indicator species for water quality/ absence of chemical contamination)</p>		
3.1 Undertake participatory consultation with farmers to establish their knowledge and priority learning needs (knowledge baseline)	Conducted with the PGS farmers during the training and monitoring trip in Year 1 and Year 2.	In Year 3 training will be provided for the operation of the rice mill.	
3.2 Develop training resources that are targeted to the farmer learning needs identified in 3.1, and pilot	Project worked with Myanmar Organic Grower and Producer Association for the PGS system training in Year 1 and Year 2.	One more PGS training in Year 3.	
3.3 Roll out amended training modules and offer refresher training	Dr. Than Than Sein from Myanmar Organic and Producer Association provided the training to the Internal control system and organic compose making.	One More training in Year 3.	
3.4 Review the governance structure and capacities of the INFA and identify priority development needs to enable scale-up, pending the anticipated new membership numbers	Completed in Year 1.		
3.5 In consultation with INFA and the organic certifier, agree timeline and responsibilities for the certification process	Completed in Year 1. INFA members applied PGS organic certificate and in	Certification process will be continued in Year 3.	



	the auditing process by Control Union for EU organic certificate.	
3.6 Train internal auditors	Organic Farmer groups were trained for Internal Control system by Dr. Than Than Sein and team.	Training will be again conducted in Year 3 for new organic farmers who join in May/June 2020.
3.7 Revise and update the INFA governance structures and financial control mechanisms	This activity was completed in Year 1. Project provided basic bookkeeping training and financial support for two full-time INFA staff members	Project will continue supporting the organisational development of INFA through training and mentoring in Year 3.
3.8 Establish supply chain control points for rice and rice flour	Both Year 1 and Year 2, INFA milled and distributed Indawgyi organic rice in the region and export to Mandalay and Yangon.	This activity will be continued in Year 3. Because INFA will operate their own rice mill, they will have better control over the supply chain to the buyers, while moving up the value chain. .
3.9 Set up and prepare for physical installation of rice mill	During the Year 2, the necessary information for rice mill installation was obtained and the rice mill and building procurement was initiated.	Rice mill installation will be completed in Year 3.
3.10 Procure flour mill	We conducted procurement for a rice mill, instead of a flour mill based on a cost-benefit analysis	
3.11 Deliver training on flour mill use and maintenance	No activity this year.	Training for the operation and maintenance of the rice mill will be conducted in Year 3
3.12 Develop and agree with INFA the detailed 3 year business plan	INFA developed business plan focusing on the organic rice production and marketed organic by INFA.	In Year 3, INFA will develop and operational business plan for the rice mill
3.14 According to the business plan, identify the priority investments/ infrastructure/ capacities required and support INFA to address these	Priority investments and infrastructure were identified as rice mill for INFA to produce organic rice.	Rice mill will be installed in Year 3.
3.15 According to business plan, establish local sales distribution systems for rice and rice flour	Two different supply chains were established after the harvesting period: distribution in the regional market and	This activity will be continued in Year 3.

		distribution in Yangon market. With the support of the project, INFA members milled the rice and distribution the organic rice within the region and exported to Yangon market.	
3.16 Support INFA to produce and sell rice and rice flour		Project support small grant to INFA to establish rice business after the harvesting time. Total of 1900 rice baskets (about 19 tons) were bought and sold in the local market during Year 2.	This activity will be continued in Year 3.
3.17 Base and end line surveys on household incomes and expenditures related to farming		No activity this year.	Survey will be conducted in Year 3.
<p><b>Output 4</b></p> <p>At least 1,000 households (c. 5,400 people) participate in community waste collection and safe disposal; at least 200 households (c.1,000 people/ approx. 50% of all HH in flood prone areas) benefit from improved sanitation systems in flood prone areas with eutrophication problems</p>	<p>4.1 By end of 2020, at least 200 new treatment systems are in place located in flood prone areas with severe eutrophication</p> <p>4.2 Reduced pathogens (E-coli) and reduced littoral BOD during the flood season in near shore water in 2021 compared to base line data collected in 2018 and 2019 (wet and dry seasons)</p> <p>4.3 By end of project, at least 1000 households in Lake Indawgyi area are participating in waste collection; land fill sites established in 3 villages where dumping of waste in the lake is most severe, paid for by users</p>	<p>1. 50 sanitation systems were set up in three villages. Another 150 system will be set up in Year 3.</p> <p>2. Water quality monitoring was conducted in Year 1 and Year 2. The data will be collected again in Year 3 to compare the pathogens/ BOD level in the water.</p> <p>3. Project extended community-based waste management system at seven villages in Year 1 and Year 2. The project already over-exceeded the target with more than 2900 households participating in community-based waste management</p>	
4.1 Develop a core team between Inn Chit Thu and Wetlands Work. Develop a HandyPod training programme for construction training and sanitation marketing using informational materials, presentations, workshops, field work, and demonstration sites		Since Year 1, Inn Chit Thu and Wetlands Work formed a group and started implement the sanitation activity. In August 2019, Sanitation expert from wetland work, Mr. Puthea provided training of handy pod construction method to the local partner	Inn Chit Thu and Wetlands Work will continue implementation the sanitation activity in Year 3 for setting up more sanitation system and conducting awareness for the new sanitation system.

	team (group of 3 peoples from Lone Ton village - Indawgyi Town) together with Inn Chit Thu.	
4.2 ID and train local business operators from the target villages who serve the HandyPod's supply side elements	Local partner team from Lone Ton (a group of 3 people) already trained for handy pod setup method and 50 handy pod has been constructed in 3 villages. The design was provided by Wetland work and some modification were made in order to fit the requirement in Indawgyi.	The setup will continue to additional 3 villages in east part of Indawgyi.
4.3 Organise a Sanitation Raffle (lucky draw) for flood-prone households in each target village involving various leadership levels; promotion, prizes, events coordination	No activities in Year 1 and Year 2.	This activity will be implemented in Year 3.
4.4 Install winning HandyPods in dry season	No activities in Year 1 and Year 2.	This activity will be implemented in Year 3.
4.5 Provide faecal sludge management guidance and demonstrations	In December 2019, a flyer containing guidelines for usage of handy pod and maintenance manual was distributed to installed households.  Plan for Wetlands Work coming to Indawgyi to provide further training was postponed due to COVID-19.	Project will continue this activity in Year 3.
4.6 Monitor and evaluate initial target village strategies; adapt as needed	In August 2019, wetland work collected algae and water sample from Lone Ton and examined the level E.coli.	Project will collect sample again in Year 3.
4.7 Explore and specifically define broader scale up of sanitation activities around Lake Indawgyi	FFI commissioned a feasibility study by BORDA for waste water treatment at the Shwe Myitsu pagoda festival site to address waste water management for the over 120,000 visitors per year.	Inn Chit Thu and Wetlands Work will explore opportunities to upscale the household waste water treatment system

4.8 Establish baseline information: nearshore pathogens (E. coli) and algal mat density in Year I wet and dry season	Information was collected in Year 1 and Year 3 by Wetland Works and Inn Chit Thu.	
4.9 Develop waste management awareness materials	Waste awareness signboards were developed and erected at 6 villages in Year 2. Leaflets for waste management have been developed and disseminated in 6 villages in Year 2.	The project will distributed in the villages in Year 3.
4.10 Implement waste management awareness campaign	One day awareness campaign for the waste management was conducted at Nan Mon village together with local authorities, high school and villagers in February, 2020. Moreover, 6 awareness signboards were installed in public areas like markets and Shwe Myit Zu pagoda.	Village awareness campaign will be conducted again in Year 3.
4.11 Facilitate establishment of village-based waste management systems, identify supply chain for recycling materials	The project provided financial support to the Parami group to extend their activity to seven villages: Ma Mon Kaing, Maing Naung, Shwe Let Pan/Lel Pon Lay, Sanwinkone/Innthar, Hepar, Hepu and Nant Mauk Kan. Since December 2018, the waste truck is continuing collecting waste Nam Mun village once a week.	Project continues this activity in Year 3.
4.12 Establish village land fill sites for safe disposal of waste	Project supported Parami group to develop landfills in one additional villages and maintain 6 dump site, particularly in Nam Mun where the population is much larger than in other villages.	Project continues this activity in Year 3.
4.13 Provide support to the new waste collection system	The project supported the establishment of a weekly waste collection system in seven villages.	Project continues this activity in Year 3.

## Annex 2: Project's full current logframe as presented in the application form (unless changes have been agreed)

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p><b>Impact:</b></p> <p>The collaborative management and ecosystem services approach achieves effective biodiversity conservation and improved livelihoods in Indawgyi. Lessons learned are shared in Myanmar and through the global network of Biosphere Reserves.</p>			
<p><b>Outcome:</b></p> <p>Participatory management systems, sustainable natural resource use and improved sanitation bring biodiversity benefits to the Indawgyi Lake Biosphere Reserve and livelihoods and health benefits to more than 10,000 residents.</p>	<p>0.1 By the end of 2019, a collaborative management committee for Indawgyi Lake Biosphere Reserve established and operating</p> <p>0.2 Number of resident water-birds is stable or increasing throughout the project period (including increasing number of Sarus cranes, <i>VU</i>, feeding in the paddy fields as an indicator species)</p> <p>0.3 At least 200 farming households (c.1,000 people, 50:50 male/female) adopt organic farming practices near lakeshore areas with eutrophication problems, by the end of the project</p> <p>0.4 By December 2020, at least 20 forest user groups representing 1,000 households (50 households per forest group) adopt community forestry, agro-forestry practices, establish wood lots and reduce the consumption of firewood</p> <p>0.5 By December 2020, at least 1,000 people (200 households/ approx. 50% of all households in flood</p>	<p>0.1 Government decision on management committee and minutes of committee meetings</p> <p>0.2 Annual mid-winter bird water census</p> <p>0.3 Organic farming certificates, internal annual audit and inspection reports</p> <p>0.4 Community forestry management plans, CF certificates, annual forest user group reports</p> <p>0.5 Annual sanitation assessment to verify numbers of HH adopting improved sanitation.</p>	<p>Myanmar government continues to support multi-stakeholder engagement in protected area management</p> <p>The security situation in Indawgyi remains safe</p> <p>Myanmar government continues to support the issuance of community forestry licences in buffer zones of protected areas</p> <p>The market demand for value-added organic/ gluten-free rice products (rice flour) continues to grow</p> <p>Improvements in waste management and sanitation lead to a decrease in water-borne disease and infection</p>

	<p>prone areas) benefit from improved sanitation systems in the flood prone areas with most severe eutrophication problems</p> <p>0.6 At least 6 villages establish community-based waste management systems; 5,400 people (1,000 households) benefit from waste collection, recycling and safe disposal, by project end</p>	<p>0.6 Annual waste management assessment of the adoption of community-based waste management systems and number of households that join waste collection system</p>	
<p><b>Output 1</b></p> <p>A decentralised and collaborative management committee and mainstreamed ecosystem services approach places the Indawgyi Lake Biosphere Reserve under management systems that respect integrated development and biodiversity needs</p>	<p>1.1 Collaborative multi-stakeholder Biosphere Reserve Management Committee operating by 2018</p> <p>1.2 The Biosphere Reserve Management Committee is trained in collaborative protected area management by February 2019 and starts implementing integrated conservation and sustainable development plans</p> <p>1.3 By end of the project improved law enforcement through collaborative patrolling; illegal commercial logging and firewood extraction, forest and wetland encroachment reduced by 50% against baseline.</p> <p>1.4 By December 2020, all BR stakeholder committee members and at least 70% of all beneficiaries exhibit improved environmental knowledge, attitude and behavior against baseline KAB survey.</p>	<p>1.1 Minutes of meetings</p> <p>1.2 Training reports/ participant evaluation; annual Biosphere Reserve progress reports for the of implementation of the 5 year management plan</p> <p>1.3 Monthly SMART patrol reports, drone-based threat assessment at the beginning and end of the project.</p> <p>1.4 Minutes of meetings of BR stakeholder committee; Knowledge/Attitude and Behaviour surveys pre and post project interventions.</p>	<p>Myanmar government continues to support multi-stakeholder engagement in protected area management</p>
<p><b>Output 2</b></p> <p>Community forestry and agroforestry in designated buffer zones of Indawgyi Lake Biosphere Reserve reduce deforestation and forest degradation,</p>	<p>2.1. At least 20 community forestry user groups established representing &gt;1,000 households (c. 5,400 people, app. 50</p>	<p>2.1. Training reports (participant evaluation, monitoring &amp; evaluation reports</p>	<p>Myanmar government continues to support the issuance of community forestry licences in buffer zones of protected areas</p>

<p>while maintaining access to essential natural resources</p>	<p>households per group) by December 2018</p> <p>2.2. At least 20 community forestry management plans established by December 2019</p> <p>2.3. At least 20 wood lots established by December 2020</p> <p>2.3. At least 20 community forestry licences issued by the end of the project</p> <p>2.6. At least 70% of forest user group members utilise fire-wood saving or electric stoves.</p> <p>2.7. Reduction of illegal logging roads by at least 50%</p> <p>2.8 Pilot timber harvesting in 6 year old established CF based on VPA timber legality standards</p>	<p>2.2. Group formation reported to forest department</p> <p>2.3. Community forestry management plans</p> <p>2.4. Annual reports on Community forestry implementation</p> <p>2.5. Community forestry certificates.</p> <p>2.6. Firewood household survey before and post interventions.</p> <p>2.7. UAV survey at the beginning and end of the project</p> <p>2.8 Forest department licence for first legal CF timber harvest in existing CF</p>	<p>Major natural disasters do not take place within the project sites and period that undermine the access to or availability of forest and forest products.</p> <p>Forest Department issues licence for pilot CF timber harvesting based on VPA standards</p>
<p><b>Output 3</b></p> <p>Organic rice farming and value-adding practices result in certified organic products that provide income to at least 200 households and protect wetland biodiversity</p>	<p>3.1 By May 2019, farmers representing 200 households, are trained in organic farming rules and concept of group certification</p> <p>3.2 INFA-operated rice mill/ rice flour mill established and processing brown rice/ rice flour by December 2019</p> <p>3.3 By December 2019, at least 200 households (c.1,000 people) in the Indawgyi Lake Biosphere Reserve are</p>	<p>3.1 Training reports</p> <p>3.2 Rice mill/ rice flour mill (INFA equipment register) records showing volumes processed</p> <p>3.3 Stock control, invoices and financial records showing volumes sold; prices and income to INFA by household.</p>	<p>The domestic and international markets for organic rice and gluten free products continues to grow during the project period</p> <p>The ability of Myanmar to export to international markets does not alter significantly during the project period</p>

	<p>using only organic agricultural inputs and zero chemical fertilisers and chemicals</p> <p>3.4 By December 2020, at least 70% of target farmers have achieved organic certification by national and/or international standards</p> <p>3.5 Household expenditure on non-organic agricultural inputs per unit yield has decreased from project baseline to endline</p> <p>3.6 Households are achieving a higher net profit per unit yield as a result of value-adding activities between project start and end (expected profits and income increases to be confirmed during business case development in Yr1)</p> <p>3.7 Number of resident water-birds is stable or increasing (including the number of Sarus cranes feeding in the paddy fields – indicator species for water quality/ absence of chemical contamination)</p>	<p>3.4 Organic certification</p> <p>3.5 Receipts showing expenditure for farm inputs</p> <p>3.6 Receipts showing purchase of rice &amp; rice flour/income for INFA members</p> <p>3.7 Annual mid-winter water bird census</p>	<p>SMM remain financially stable and committed to developing the Indawgyi supply chain</p> <p>If only organic agricultural inputs are in use then the chemical inputs and run off will proportionally reduce.</p>
<p><b>Output 4</b></p> <p>At least 1,000 households (c. 5,400 people) participate in community waste collection and safe disposal; at least 200 households (c.1,000 people/ approx. 50% of all HH in flood prone areas) benefit from improved sanitation systems in flood prone areas with eutrophication problems</p>	<p>4.1 By end of 2020, at least 200 new treatment systems are in place located in flood prone areas with severe eutrophication</p> <p>4.2 Reduced pathogens (E-coli) and reduced littoral BOD during the flood season in nearshore water in 2021</p>	<p>4.3 Photo evidence of treatment systems</p> <p>4.1 Repeat pathogen survey report showing reduced level of pathogens (E-coli)</p>	<p>Local communities willing to change behaviour in favour of improved sanitation and waste management</p> <p>There are no significant lakeside developments in this project period that cause an additional source of untreated waste pollution to the lake.</p>



	<p>compared to base line data collected in 2018 and 2019 (wet and dry seasons)</p> <p>4.3 By end of project, at least 1000 households in Lake Indawgyi area are participating in waste collection; land fill sites established in 3 villages where dumping of waste in the lake is most severe, paid for by users</p>	<p>4.3. Village waste collection agreements; photo documentation of land fill sites</p>	
<p><b>Activities</b> (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)</p>			

## Annex 3: Standard Measures

**Table 1 Project Standard Output Measures**

Cod e No.	Description	Gender of people (if relevant)	Nationali ty of people (if relevant)	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
6A.	No. of farmers received Internal control system training for organic certificate application and compose making	Male: 120, Female: 37		80	157			
6A.	Number of people to receive SMART Patrol training	Male: 17	Shan	17	17			
6A	Number of people to receive Community Forestry training	Male: 25, Female: 11	Shan and Kachin	30	36			
6A	Number of people receive sanitaion training	5 male, 1 female	Shan	6	6			
14B	Number of persons attend workshop to present law enforcement	1 Female		0	1			
7	Number of information leaflets or posters on the Community forestry	NA		100	100			
7	Number of information leaflets or posters on organic rice project	NA		100	100			
7	Number of information leaflets or poster on saniation.	NA			100			

**Table 2 Publications**

Title	Type (e.g. journals, manual, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)

## Annex 4: Selected Project Images and Outputs

### Checklist for submission

	Check
<b>Is the report less than 10MB?</b> If so, please email to <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> putting the project number in the Subject line.	Yes
<b>Is your report more than 10MB?</b> If so, please discuss with <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> about the best way to deliver the report, putting the project number in the Subject line.	No
<b>Have you included means of verification?</b> You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	Yes
<b>Do you have hard copies of material you want to submit with the report?</b> If so, please make this clear in the covering email and ensure all material is marked with the project number. However, we would expect that most material will now be electronic.	No
Have you involved your partners in preparation of the report and named the main contributors	Yes
Have you completed the Project Expenditure table fully?	Yes
Do not include claim forms or other communications with this report.	