Workshop on Restoring Myanmar's Degraded and Deforested Landscapes
Thingaha Hotel, Nay Pyi Taw, Myanmar, 9-11 November 2016

Workshop Report

November 2016

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Executive Summary

This report summarises the main outcomes of the workshop on Restoring Myanmar's Degraded and Deforested Landscapes, organised jointly by the Forest Department of the Ministry of Natural Resources and Environmental Conservation (MONREC), IUCN (International Union for Conservation of Nature) and The Nature Conservancy (TNC) in Nay Pyi Taw, Myanmar, on 9-11 November 2016, with the financial support of UK aid and TNC.

The workshop introduced the concept of Forest Landscape Restoration (FLR) and also presented the Restoration Opportunities Assessment Methodology (ROAM), a flexible framework that can be used to identify and prioritize FLR opportunities. FLR is an integrated approach that seeks to ensure that forests, trees, and the functions that they provide are effectively conserved, restored, and employed on a landscape-scale to help secure ecological integrity and sustainable livelihoods.

The speakers and sessions highlighted the critical ecosystem services that forests and trees in a landscape provide, and the importance of looking at different elements of a landscape and their interactions. The speakers also emphasized that there is an opportunity to learn from the experiences of the past and to build on the ten-year Restoration and Rehabilitation Programme that has been prepared for Myanmar.

A high-level panel discussion with participants from different departments highlighted the need for inter-sectoral collaboration in order for restoration efforts to be successful. The needs and interests of different stakeholders need to be taken into account.

The speakers also highlighted the need to have accurate data to support restoration planning at the national and local levels, and the need to align policies and financing strategies in order to create the necessary enabling environment for FLR.

The workshop included a field visit to Taungoo District to learn from Myanmar's experiences with reforestation and discuss best practices for FLR.

Four ROAM break-out sessions resulted in the following outcomes (details can be found in the report):

1) Session 1 on Restoration Objectives
The participants identified several restoration objectives, in particular, the provision of ecosystem services (fuelwood, watershed regulation, economic development, climate change adaptation and mitigation, poverty alleviation, biodiversity, soil fertility), community development and other opportunities such as timber revenue and agricultural crops.

2) Session 2 on Enabling Conditions for FLR
While several enabling conditions for FLR are in place, other conditions have not yet been fulfilled and will require attention. These include the need to define clear roles and responsibilities of different stakeholders in restoration activities, and the need to put in place effective institutional coordination.

3) Session 3 on Stakeholder Mapping
A wide range of national, sub-national and local stakeholders were identified, including stakeholders from various government agencies, civil society, academia, local communities, and the media. The need to accord special attention to the requirements of women, youth and other vulnerable groups was recognised.

4) Session 4 on FLR Mapping
In this mapping exercise, the participants familiarized themselves with spatial planning and with different trade-offs in a landscape. They discussed different considerations to prioritize restoration interventions and analysed decision criteria.

The next steps on FLR following this workshop will include:

- Preparation of the detailed project document for The Restoration Initiative (TRI) project, funded by the Global Environment Facility (GEF). The project will include four components: 1) Policy Development and Integration, 2) Implementation of Restoration Initiatives, 3) Institutions, Finance and Upscaling, and 4) Knowledge, Partnerships, Monitoring and Assessment.
- Stakeholder consultations and collection and analysis of data to prepare a national and/or sub-national ROAM assessment.
- Exploring the potential for creating a National Working Group on FLR with representatives from different ministries as well as civil society.

Background

On 9-11 November 2016, the Forest Department of the Ministry of Natural Resources and Environmental Conservation (MONREC), IUCN (International Union for Conservation of Nature) and The Nature Conservancy (TNC) jointly organised a workshop aimed at supporting Myanmar's efforts to restore its degraded and deforested landscapes.

The three-day workshop was focused on introducing Forest Landscape Restoration (FLR) to participants from different ministries, departments, civil society organisations and academia. FLR is an integrated approach that seeks to ensure that forests, trees, and the functions that they provide are effectively conserved, restored, and employed on a landscape-scale to help secure ecological integrity and sustainable livelihoods.

The workshop also introduced the Restoration Opportunities Assessment Methodology (ROAM), a flexible and affordable methodology developed by IUCN and partners, which has been used in several African and Latin American countries to identify and analyse FLR opportunities that are ecologically, economically and socially feasible

The workshop was co-funded by TNC and UK aid from the UK government through its Knowledge and Tools for Forest Landscape Restoration project (KNOWFOR) implemented by IUCN.

Objectives
The objective of the workshop was to support Myanmar's efforts to restore degraded and deforested landscapes by introducing the concept of Forest Landscape Restoration (FLR) and by developing a restoration planning roadmap for Myanmar using ROAM. The workshop aimed to:
- Improve participants' understanding on drivers of deforestation and degradation in Myanmar;
- Take stock of Myanmar's restoration goals and options;
- Take stock of successful restoration initiatives, e.g., conservation agriculture, reforestation, plantations and species selection, etc.;
- Introduce The Restoration Initiative (TRI) project, funded by the Global Environment Facility (GEF);
- Introduce and enhance understanding of the FLR approach and discuss how it can support Myanmar's restoration and sustainable development goals;
- Introduce ROAM and its key components through interactive sessions and discussions;
- Develop a restoration action plan (FLR roadmap) for Myanmar; and
- Identify stakeholders for restoration planning.

This report summarises the main discussions and outcomes of the workshop, and outlines the next steps. The agenda and the list of participants are included as annexes to this report.

DAY 1

1. Opening remarks

His Excellency U Ohn Win, Union Minister of Natural Resources and Environmental Conservation, opened the workshop by emphasizing the benefits that natural and modified forests provide. Forests are an integral part of the Earth's life supporting systems; among other things, they are major stores of carbon. In absorbing and releasing heat and water, they play a crucial role in regulating climate. They also regulate the movement of water, protecting soils from excessive erosion, reducing the silt loads of rivers, and moderating floods and other harmful fluctuations in the flow of water. Forests are also diverse ecosystems, supplying many resources and generating vital income and employment.

Forests worldwide are threatened by uncontrolled degradation and conversion to other land uses due to increasing human pressure, such as agricultural expansion, overgrazing, unsustainable logging, inadequate fire control and damage from air pollution.

His Excellency U Ohn Win also mentioned that, in accordance with the guidance of State Counsellor Daw Aung San Suu Kyi, MONREC has developed a ten-year Reforestation and Rehabilitation Programme in cooperation with related stakeholders, building on past experiences and lessons learned. This programme will be implemented in collaboration with related stakeholders, including NGOs, civil society organizations, the private sector, academia, local community groups and indigenous peoples.

Dr. Scott Perkin, Head of Natural Resources Group, IUCN Asia, addressed the participants by explaining that IUCN had been supporting MONREC and the Forest Department through a number of initiatives. In 2015, IUCN provided technical support to the Union Government to revise the National Biodiversity Strategy and Action Plan (NBSAP) under the Convention on Biological Diversity (CBD). The NBSAP specifically recognises the importance of restoration and sets ambitious targets to be achieved by 2020. IUCN is also implementing its flagship project Mangroves for the Future (MFF) as an important contribution towards building the resilience of Myanmar's coastal ecosystems and communities. IUCN and partners are also implementing an initiative aimed at restoring fisheries and supporting livelihoods in the Gulf of Mottama. Through the Critical Ecosystem Partnership Fund (CEPF), IUCN is supporting civil society organizations engaged in the conservation of biodiversity. IUCN currently has two member organizations in Myanmar: Friends of Wildlife (FOW) and the Forest Resource Environment Development and Conservation

Association (FREDA).

IUCN is implementing Forest Landscape Restoration initiatives in several countries in Asia, including China, India, Indonesia, Nepal and Vietnam. FLR has the potential to provide multiple benefits for people and for nature, by providing fuelwood, stabilising soils, storing carbon, providing clean water, and conserving biodiversity. This workshop aims to bring the key players together to build on the wealth of experiences that is available in Myanmar and on the initiatives that are already underway.

Dr Perkin thanked IUCN's partners, the Forest Department and TNC, and all participants for attending the workshop, and UK aid for its financial support.

2.   **Workshop objectives and agenda**

Ms. Li Jia, Forest Landscape Restoration Coordinator, IUCN Asia, explained the objectives of the workshop and introduced the ROAM handbook. The ROAM methodology builds on the lessons and experiences of FLR to date, and provides a framework to assess restoration opportunities.

3.   **Keynote speeches**

Ms. Mirjam Kuzee, Forest Landscape Restoration Assessment Coordinator, Global Forest and Climate Change Programme, IUCN, introduced the Bonn Challenge, a Global Partnership on Forest Landscape Restoration. The Bonn Challenge was launched in 2011 with a global goal to restore 150 million hectares of degraded and deforested lands by 2020. The goal was increased to 350 million hectares by 2030 under the New York Declaration on Forests as part of the 2014 United Nations Climate Summit. To date, 124 million hectares have already been committed through 38 national and sub-national commitments.

Ms Kuzee explained that FLR does not look at different elements of a landscape in isolation, but rather at the interaction among these elements, and the different actors in a landscape. FLR aims to bring back biological productivity and benefits for people and the planet. FLR is a long-term process, but can produce short-term benefits. FLR aims to restore functionality, not to restore the original forest, and is therefore forward-looking.

Dr. William Jackson, Consultant, TRI, introduced The Restoration Initiative (TRI). Developed by IUCN, FAO and UNEP, in close partnership with countries, TRI is a global program to restore and maintain degraded and deforested landscapes at scale, in support of the Bonn Challenge.

TRI will be implemented in ten countries in Asia and Africa, including Myanmar. The programme will provide support for a broad range of FLR objectives and activities, and is anticipated to start in mid-2017. The detailed project document will be developed in close collaboration with all stakeholders over the coming months.

TRI aims to address a number of common challenges that countries commonly face when implementing FLR, such as:

- Insufficient political prioritization
- Lack of awareness of restoration opportunities and approaches
- Lack of incentives/enabling environment for FLR
- Governance and land tenure issues
- Limited capacity to plan for and manage FLR
- Limited incorporation of gender considerations
- Inadequate mobilization of resources

Dr. Tint Lwin Thaung, Myanmar Country Program Director, TNC, explained the transition from reforestation to restoration. Both approaches have similar objectives, such as to provide timber and

fuelwood for local communities by bringing trees back. However, the FLR approach has broader and more complex objectives than the traditional forest plantations. FLR seeks to bring forests back not only for timber, but also for other functions and services that trees provide, including water, habitat for wildlife, climate change adaptation, and many more. Reforestation is not new to Myanmar, but recent figures show that only about 50 per cent of restoration efforts in the past have been successful.

In order to increase the success of forest restoration, FLR promotes participatory approaches and takes into consideration the interests of multiple stakeholders, such as the private sector and local communities. FLR also provides a platform to identify trade-offs among different objectives and to set priorities within a landscape. It is important to look at the needs for restoration, such as the demand for fuelwood or global commitments to carbon emissions

reduction. Dr. Tint Lwin Thaung mentioned that 20 years ago, it was difficult to introduce the concept of FLR to the country, but that there is an opportunity now to learn from the experiences of other countries and rebuild Myanmar's forest landscapes.

U Bo Ni, Director, Watershed Management Division, Forest Department, shared information on Myanmar's national forest policy objectives. He mentioned that Myanmar is the largest country in mainland Southeast Asia, and has one of the highest percentages of forest coverage in Asia, with almost 43 per cent of the country covered with various types of forest. According to a recent report, the baseline value of forest ecosystem services in Myanmar in 2013 was estimated to be 7.3 billion USD.

Well-managed forest landscapes provide a source of timber, firewood and other goods, and help maintain biodiversity. Forest landscapes provide a substantial contribution to the national economy, and in recognition of this, Myanmar has put in place related policy on forest resources in the country, including the Forest Policy 1995 and the more recent ten-year Restoration and Rehabilitation Programme (2017-2027). The Forest Policy identified six imperatives, namely: Protection; Sustainability; Basic Needs; Efficiency; Participation; and Public Awareness. Without the attainment of each of these, the broader national goals and objectives would be jeopardized.

U Bo Ni mentioned that inter-sectoral coordination, especially with the agricultural sector, is critical in order to achieve FLR goals. Examples of existing coordination bodies are the proposed national REDD+ task force, the Mangroves for the Future National Coordinating Body, and the Community Forestry National Working Group. U Bo Ni also mentioned that a new land law is being developed in order to harmonize existing laws related to land. Under this law, a National Land Use Council will be set up.

4.   Forest and land degradation in Myanmar: current status, trends and drivers

Daw Thiri Hmway Maung Maung, Project Specialist, ECODEV, presented the results of research conducted

by ECODEV on forest cover change between 2002 and 2014. She mentioned that rapid political and economic changes in Myanmar are increasing the pressures on forests. According to the research, intact forest decreased from 27 per cent to 24 per cent between 2002 and 2014, and degraded forest increased from 38 per cent to 39 per cent. These numbers differ from the FAO results because of the different methodologies used, but both sets of results point in the same direction: Myanmar's forests are declining sharply in both quantity and quality.

The main drivers of deforestation and forest degradation are illegal logging, overexploitation, and the demand for fuelwood. Mining activities, agricultural expansion, hydropower dams and timber concessions are also important factors.

Daw Thiri Hmway Maung Maung made the following recommendations based on the study:
- Secure and assess the remaining forest areas;
- Reform land and tree tenure to secure private and community rights;
- Introduce sustainable forest management in conjunction with local communities;
- Promote good governance and rule of law: Update and enforce rules and guidelines;
- Facilitate citizen-led, multi-stakeholder landscape planning;
- Resolve political conflicts in ethnic areas and decentralize forest governance;
- Promote further processing of legal timber. Establish credible Chain of Custody with third party independent monitoring; and
- Conduct an overall sectoral policy review: revise the Forest Policy and Law, promote community forestry and other forms of citizens' rights to forests, forest products, and forest revenues.

5.   High Level Panel Discussion: Restoration needs and goals for Myanmar

The keynote speeches were followed by a high-level panel discussion on restoration needs and goals for Myanmar, facilitated by **Mr. Jake Brunner, Head of Indo-Burma Group, IUCN and Ms. Zin Myo Thu, National Coordinator, Mangroves for the Future, IUCN.**

The panel members were:
- Dr. Nyi Nyi Kyaw, Director General, Forest Department
- U Ba Kaung, Director, Dry Zone Greening Department
- U Htin Aung Shein, Deputy Director, Department of Agriculture
- U Ohn Lwin, Director, Mining Department
- Dr. Zaw Lwin Tun, Director, Irrigation and Water Utilization Department

Panel members (from left to right): Dr. Zaw Lwin Tun, U Ohn Lwin, Dr. Nyi Nyi Kyaw, U Ba Kaung, U Htin Aung Shein

The panel members first introduced themselves and then responded to the questions asked by the facilitators and the audience.

Question 1: Have you seen forest and land degradation in your sectors, and what are the causes of this degradation?

Dr. Nyi Nyi Kyaw, Director General, Forest Department, responded that we have to distinguish between deforestation and forest degradation. In the case of deforestation, forest has been cleared and transformed into other land uses. The soil is therefore directly exposed and chemical and physical changes take place. Plants and seedlings can no longer grow on this degraded and eroded land, and these areas are vulnerable to floods and droughts. In the case of forest degradation, trees have been cut down prematurely, which causes degradation. In Myanmar, there is a high level of forest degradation due to illegal logging and excessive use for firewood.

According to the 2014 census, the need for firewood (including charcoal) in the entire country is about 18 million tons. However, the government supplies only 900,000 tons, which means that the remaining 17.1 million tons are harvested from illegal or unsustainable sources. This need for energy is considered one of the main reasons for deforestation and forest degradation in Myanmar, along with land conversion into other uses, expansion of urban areas, and building of reservoirs and dams.

Dr. Nyi Nyi Kyaw also mentioned that ecosystem services have been neglected for quite some time, which impacts both forests and wildlife. Another factor is that, although rules and regulations for logging exist, there is a lack of enforcement of the rule of law.

U Ohn Lwin, Director, Mining Department, responded to the question from the mining point of view. Deforestation can be the direct result of illegal mining activities, which impact both the environment and the quality of the soil. This problem can be addressed by restricting mining operations. In October this year, three per cent of the overall area was approved for mining activities, and 1,590 companies were given the right to work on this land. According to the Mining Law, mining companies are required to restore the area after use and to replant trees. U Ohn Lwin also drew attention to the importance of inspections.

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Dr. Zaw Lwin Tun, Director, Irrigation and Water Utilization Department, added that the building of dams and reservoirs can also be a cause of forest degradation. Mainly, these reservoirs are built for irrigation purposes; there are only a few hydropower dams. According to the presentation by ECODEV, a small percentage of forest land is used for water.

Dr. Zaw Lwin Tun mentioned that in the central part of Myanmar, overexploitation, extraction and changes in land use are the main drivers of deforestation, along with the expansion of urban areas, construction of roads and bridges, and the expansion of agricultural land areas. In coastal areas, the degradation of mangrove forests upon which local people depend is due to the overuse of firewood and changes in land use. In Shan State, shifting agriculture is among the drivers of forest degradation, while in the border areas, conflicts and the absence of rule of law can cause deforestation.

U Ba Kaung, Director, Dry Zone Greening Department, explained that in the dry zone area of the central part of Myanmar, rapid land use changes over the past 50-60 years have led to forest degradation, and some forest has become bare land. As mentioned by other members of the panel, the reasons for this are extraction for firewood as the rural population is dependent on firewood for energy; and the expansion of agricultural land as the second generations need larger areas for agriculture. Another driver of deforestation is land grabbing by big companies in rural areas, not only for agricultural use but also to resell the land as prices rise.

In order to stop further degradation of forests, it is critical to tackle poverty. Forest restoration needs to respond to the needs at the local level in terms of food security and access to water. We need to understand the value of having good agricultural land. If people have no access to land, forest degradation will continue.

U Htin Aung Shein, Deputy Director, Department of Agricultural, added that clearance of forest is often linked to land tenure. Land erosion and environmental degradation are also due to unsustainable agricultural practices, such as the use of chemical fertilisers despite organic practices promoted by extension services.

Question 2: How could Myanmar overcome the problem of land degradation? How could your ministry/department contribute to solving the problem?

Dr. Nyi Nyi Kyaw mentioned that, according to the FAO Forest Resources Assessment (FRA), 42 per cent of the country is still under forest cover. Different definitions of forest are used for different assessments. The 1.7 per cent deforestation rate in Myanmar is among the highest in the world, just behind Indonesia and Brazil.

Different solutions can be applied to different areas of forest degradation. In less degraded areas, natural regeneration can be applied. In areas where valuable timber such as teak has been extracted, these timber species can be replanted through enrichment planting. In areas where forest has been cleared, ecological restoration of the area should be considered. This needs to be done not only by the government; all actors have to work together to provide sufficient capacity and human resources for restoration.

U Ohn Lwin explained that mining activities are subject to environmental protection procedures. Mining companies have to submit environmental impact assessment reports for all mining operations. Once the activity is concluded, the company is required to replant the area in order to address land degradation.

Dr. Zaw Lwin Tun added that forest degradation leads to a decrease in soil quality and to soil erosion, and also impacts biodiversity. To address these problems, different agencies need to cooperate on watershed management and replant trees in watershed areas, where reservoirs are located. It is also important to educate rural inhabitants who depend on firewood as their source of energy, and to provide them with alternative energy sources.

U Ba Kaung mentioned that there are many different ways to restore degraded forest. He recommended finding low-cost interventions, for instance, restoration in small community forests together with rural communities, instead of focusing on large areas. Local inhabitants can also be encouraged to plant trees along the roadside and along fences to increase long-term sustainability and stop erosion.

U Htin Aung Shein explained that there are 24 different land types in the country and that forest restoration should take these into account. He mentioned that planting trees can help combat soil erosion, improve soil quality and retain rainwater and moisture. Soil erosion can be reduced by planting windbreaks, especially in the dry zone. In these areas, fast-growing trees can be planted as windbreaks. In addition, agroforestry interventions implemented jointly by the private and public sector and NGOs, can also help combat soil erosion.

A participant from the audience commented that, based on these discussions, restoration should involve not only the Forest Department, but also, other ministries and departments such as Agriculture and Mining. We need to be aware of the overall perspective and the rules of different departments involved. For instance, for agroforestry interventions, we need to cooperate with the Department of Agriculture. We should not think only about the activities being implemented by one department on its own. If we cooperate among different ministries and departments, restoration can be more successful and involve much larger areas and capacities.

Another participant added that we need to recognise the importance of local communities, as they live closest to these areas and have the capacity to participate in forest management programmes. The participant also mentioned that we need to consider whether shifting cultivation/rotational agriculture leads to forest degradation.

A third participant mentioned that in order to maintain forests and reverse forest degradation, it will be critical to adopt a culture of cooperation among the government agencies. Currently, cooperation among ministries is still weak. This workshop has provided a platform for multi-stakeholder participation. It will also be important to promote ownership of local people over natural resources and the environment, as well as to involve the private sector through the right incentives and policies. We need to develop a long-term investment plan.

Question 3: How could Forest Landscape Restoration help solve the problems associated with land degradation? (Erosion control? Watershed protection? Food production? Employment? Biodiversity conservation? Timber and fuelwood production?)

Dr. Nyi Nyi Kyaw mentioned that, from a forestry point of view, a range of technical and practical interventions can help restore degraded forests, for instance, to increase the supply of firewood. However, we also need to consider alternative sources of energy in order to reduce the demand for fuelwood. Myanmar has natural gas but most of it is exported to other countries in order to earn foreign exchange. According to Myanmar's INDC, reserved forest areas will be increased from 24 per cent to 30 per cent of the total national land area by 2030, [which may further decrease the supply of fuelwood at the national level]. Myanmar could learn from experiences of other countries in developing alternative sources of energy, including hydropower. Community forestry should also be further developed.

U Ohn Lwin emphasized the importance of addressing soil erosion, which causes a lot of problems in areas where local communities live. Addressing soil erosion needs careful planning. Mining companies should also be involved.

Dr. Zaw Lwin Tun added that soil erosion is often linked to infrastructure development, for instance, dam construction. Watershed areas where land has been extracted are also vulnerable to soil erosion. In these areas, replanting should take place, in order to prevent further erosion. The Irrigation and Water Utilization Department should cooperate closely with the Forest Department in this regard.

U Ba Kaung mentioned that everyone, including the government and communities, whether rich or poor, is over-dependent on natural resources. To address forest degradation, we need to reduce the dependency on natural resources. In particular, we need to reduce poverty and provide alternatives to local communities, in order to sustain forest resources.

U Htin Aung Shein highlighted that past projects focusing on plantations to reduce soil erosion had not always been sustainable. In order for restoration to be successful, we need to consider food production that is compatible with the type of land in a given area; we need to create employment opportunities; reduce the costs of agriculture; grow medicinal plants that provide benefits to local communities; develop check dams and conservation activities; manage watershed areas and manage water use for livestock; raise awareness of local communities about land degradation and sustainable harvesting of firewood; and grow multiple fast-growing species that can be used as firewood.

Question 4: What role do you see for civil society and the private sector in Forest Landscape Restoration?

Dr. Nyi Nyi Kyaw responded that local communities play a critical role in the protection and restoration of forests. It is important to recognise good practices, such as practices to maintain soil condition as part of rotational agriculture in Shan State. The same is true for the private sector. In terms of community forestry, the private sector can help assess what kinds of plants and trees are economically valuable and can be marketed, in order to increase incomes of local communities.

U Ohn Lwin explained that the Department of Mining works very closely with partners like the gem and coal associations on issues such as soil erosion and creating local employment opportunities for local communities.

Dr. Zaw Lwin Tun added that we need to look into existing good practices, create employment opportunities and incentives for people to participate in the forest landscape restoration process.

U Ba Kaung mentioned that the level of cooperation with local communities and the private sector should be increased in order to enhance the benefits of community forestry to society. He also emphasized that, while many organizations focus on conducting assessments and producing reports on socio-economic conditions, it is important to implement practical innovations on the ground with local communities.

U Htin Aung Shein concluded that only through a participatory process can the cooperation with communities and the private sector be improved. In addition, existing areas need to be surveyed in order to identify suitable crops. Communities involved need to know what kind of benefits they can get from restoration or community forestry interventions; incentives need to be provided.
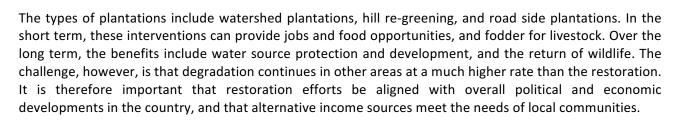
6. Technical session

U Ba Kaung, Director, Dry Zone Greening Department, gave a presentation on "Learning from our experience to date: Previous and ongoing restoration initiatives in Myanmar". He explained that Myanmar's forests include a variety of different forest types. He also presented the different drivers of degradation and introduced the main national large-scale reforestation zones. These priority zones for restoration have been defined based on the deforestation rates.

U Ba Kaung then introduced the ten-year Myanmar Reforestation and Rehabilitation Programme, which is waiting for approval from the highest level of government. He also gave some background information on the Dry Zone. Forest cover there is lower than in other parts of the country and there is heavy pressure on forests from farming and livestock.

Efforts have been undertaken to try to restore degraded land. Restoration strategies put in place in the Dry Zone include:

- Establishment of forest plantations (re-greening);
- Protection of remaining natural forests (natural regeneration);
- Promotion on utilization of fuelwood substitutes; and
- Water resources development.

The types of plantations include watershed plantations, hill re-greening, and road side plantations. In the short term, these interventions can provide jobs and food opportunities, and fodder for livestock. Over the long term, the benefits include water source protection and development, and the return of wildlife. The challenge, however, is that degradation continues in other areas at a much higher rate than the restoration. It is therefore important that restoration efforts be aligned with overall political and economic developments in the country, and that alternative income sources meet the needs of local communities.

Mr. Jake Brunner asked if solar energy systems are in use in rural areas. **Dr. Tint Lwin Thaung** responded that solar energy is in use in some communities, as well as natural gas, but that there is no adequate domestic policy to promote the import of gas cylinders.

A participant asked if there are any plans for restoration in other regions of the country, where restoration is economically and ecologically feasible. **U Ba Kaung** responded that the restoration programme has been defined for all areas of the country. Restoration should also include community-initiated plantings and plantings on agricultural land.

Another participant asked if there are any plans to make use of technologies, such as remote sensing, to improve the biophysical and socio-economic outcomes of reforestation efforts. **U Ba Kaung** responded that there are no concrete plans for now, but that there should be coordination with other ministries that are working on water supply projects, infrastructure, roads, health, livestock, and agriculture.

Dr. Tint Lwin Thaung asked about the costs per hectare of restoration, and the survival rate after planting. **U Ba Kaung** responded that, despite the difficult environment in the Dry Zone, the cost is relatively low at around 100 USD/acre or 250 USD/ha. Regarding the survival rate, the plantings take place in the rainy

season and the survival rate is around 90 per cent in the first year, 70-80 per cent the year after, and 50 per cent after five years.

Prof. David Lamb, University of Queensland, then gave a technical introduction to FLR. He mentioned that a transformation is underway from reforestation for timber production by the State and industry, to a greater involvement of other landholders, including small farmers, by improving local people's livelihoods through reforestation. There is also an increasing interest in generating ecosystem services such as watershed protection, carbon storage, and biodiversity.

FLR does not aim to reforest the entire landscape – but to restore functionality. FLR involves a variety of reforestation methods and species, at different locations. FLR also involves strategic planning at the landscape level. Prof. David Lamb also explained that certain ecosystem services can be restored by fairly simple methods, while more diverse methods are more likely to involve a wider variety of ecosystem services. It is important that reforestation efforts provide benefits to farmers in the short, medium and long term.

In terms of priority setting, certain areas are more likely to be critical for reforestation and restoration, such as riparian areas and hillside areas. It is also important to consider the willingness and interests of the land owner, and to implement policies that provide incentives for reforestation.

A participant asked about the differences between FLR and traditional farming practices by indigenous people. **Prof. Dr. David Lamb** responded that FLR is a more strategic approach that considers the ecological functions in a landscape. However, traditional farming practices also provide important knowledge about the land and the appropriate species. It is therefore important to build on the experiences of local farmers and indigenous peoples.

A participant from the Wildlife Conservation Society (WCS) mentioned that in terms of protected areas restoration, traditionally the main goal is wildlife conservation, but that in certain cases the objectives could be broadened.
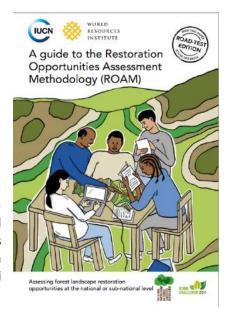
Another participant asked how national policies can encourage different line agencies to work together, given that these agencies have different objectives. **Prof. Dr. David Lamb** responded that national and regional bodies can be put in place to resolve these issues and bring different agencies together.

Ms. Mirjam Kuzee then introduced ROAM and its key components. ROAM is a flexible and affordable methodology, which has been used in several African and Latin American countries to identify and analyse FLR opportunities that are ecologically, economically and socially feasible. The process is led at the country or sub-national level by different stakeholders. ROAM helps identify and negotiate restoration objectives. ROAM has been introduced in several countries by IUCN and partners such as the World Resources Institute (WRI), GIZ and FAO.

The key components of ROAM are:
- Scoping FLR (objectives)
- Defining the problem and opportunities
- Understanding the drivers of degradation
- Stocktaking
- Engaging stakeholders
- Stratification
- Data and mapping
- Developing restoration strategies and interventions

Engaging stakeholders in all phases of ROAM is important, from decision-makers to more vulnerable groups such as women and youth. Also, in the planning of restoration strategies, it is important to consider the benefits of different restoration techniques in terms of supporting progress towards the Aichi Targets and other national and international commitments.

The ROAM materials can be accessed at the following link: www.iucn.org/ROAM.

7.   ROAM breakout sessions 1-3

Ms. Mirjam Kuzee then introduced the breakout sessions.

- **Session 1: Identifying restoration objectives and challenges (scoping exercise)**

In session 1, the participants were asked to:
   a.   Identify three reasons (objectives) for doing FLR. These can be objectives defined in the NBSAP, national policy documents but also more generic on for example poverty alleviation, income generation, export etc.
   b.   Rearrange them by category, and agree on priorities.
   c.   Identify who's objectives they are, and if all stakeholders are represented (private sector, women, youth, communities, etc.).

The objectives identified by the participants include:

1. **Ecosystem services** (fuelwood, watershed regulation, economic purpose, climate change adaptation and mitigation, poverty alleviation, biodiversity, soil fertility)
2. **Community development** (prerequisite: people's empowerment) (income diversification)
3. **Other opportunities** (timber revenue, agricultural crops)
➢ **Stakeholders:** Local communities (including women), FD district level, REDD programme, Irrigation Department, farmers, civil society organizations (CSOs), timber merchants, wood processors, etc.

The participants also discussed that the objectives and their prioritization depend on the area and can sometimes be conflicting. Therefore, good management or zoning practices need to be put in place. The participants also mentioned that people's empowerment is necessary for community development. Some participants noted that community development, as well as timber revenue and agricultural crops, are in fact an outcome of ecosystem services, and not separate objectives.

Restoration objectives and stakeholders identified in Session 1

- **Session 2: Analysis of enabling conditions for FLR**

In session 2, the participants were asked to analyse the enabling conditions for FLR. The main outcomes of the discussion are summarised in the table on the following page.

Analysis of enabling conditions in Session 2

Theme	Feature	Y/N	Questions on key success factors for FLR (FLR readiness)
Motivate	Awareness	Yes, if incentives can be put in place	Will FLR generate economic benefits? • To succeed in Myanmar, FLR has to be targeted at the dry zone where forest and soil degradation are highest; there is also significant poverty. The population needs to participate and needs incentives. What kinds of incentives can be provided? FLR is also possible in mangrove areas. • Incentives depend on the area in which FLR will work. For example, in insurgent areas, some of the conflicts are due to mining activities. There are strong vested interests in illegal operations; these need to be addressed if people are to benefit from FLR.
		Yes	Will FLR generate social benefits? • Immediate outcome of forest and soil degradation is natural disasters and FLR may help stop further natural disasters • May complement poverty alleviation, but there are factions that do not want to see people develop, so they can monopolize the people • May help with reconciliation if done in areas where there is prevalence of law and order. In other areas, the economic interests will be too high for this to work.
		Yes	Will FLR generate environmental benefits? • Yes, can have positive environmental impact in the long term, especially for water conservation
	Legal requirements	Yes	Do laws requiring restoration exist? • Yes, part of forest policy.
		Mixed	Are laws requiring restoration broadly understood and enforced? • Yes, but they are often understood to only be concerned with reserve forests and some people think they do not apply outside these areas. • Many people do not fully understand Myanmar language, so their understanding of laws is often low. • Implementation in areas where there is to be a reservoir can cut down large trees but in reality everything is cut. • Land use comes into play for FLR. OK in reserved forest areas, but will be complex outside reserved areas. FLR will need to engage with people who are dependent on resources.
Enable	Ecological conditions	Yes	Are soil, water, climate, and fire conditions suitable for restoration? • Yes
		Yes	Plants and animals that can impede restoration are absent, e.g. invasive species
		Yes	Are native seeds, seedlings, or source populations readily available? • Can rely on Forest Research Institute to collect seeds etc.
	Market conditions	No	Are competing demands (e.g., food, fuel) for degraded forestlands declining • Demand for products is increasing
		No	Do value chains for products from restored areas exist? • No commercial markets yet exist for value chain forest products for local communities • However, people do have the right to sell products
	Policy conditions	Yes (they will be soon)	Are land and natural resource tenure secure? • Now have new land use policy that will enable land law and rules in near future • At present there is no tenure security
		Mixed	Are (sectoral) policies affecting restoration aligned and streamlined? • Different sectors have different policies. May need to realign policies in sectors after FLR commences

			• Newly formed committees headed by Vice Presidents that will help solve cross sectoral issues at central level
		Yes	Are there restrictions on clearing remaining natural forests? • There are rules and directives • Have defined high value conservation forest
		Maybe to an extent	Are forest clearing restrictions enforced? • Difficult to say
	Social conditions	Yes, in community forest areas	Are local people empowered to make decisions about restoration? • Yes, in community forest areas where community can decide for the community forest (not necessarily for restoration)
			Do local people benefit from restoration? • Just starting as only just starting to restore, so assume people will benefit
	Institutional conditions	No	Are roles and responsibilities for restoration clearly defined? • Process not yet started
		No	Is effective institutional coordination in place? • Hoping these will emerge once FLR starts
Implement	Leadership	Yes	Do national and/or local restoration champions exist? • Supported by Minister and DG as well as FD team
		Yes	Is there sustained political commitment? • State Councillor support
	Knowledge	Mixed	Is there landscape restoration "know how" at national and sub-national levels? • Technical skills exist in government department but not in community (although there is indigenous technical knowledge)
		Mixed	Is there transfer of landscape restoration "know how" via peers or extension services? • Yes, extension divisions exist in Forests and Agriculture and Livestock, but not for FLR
	Technical design	No	Are (current) restoration designs technically grounded and climate resilient? • Current conventional tree planting and plantations for timber, fuelwood and fibre
		No	Will FLR lead to less clearing of land, or is there risk of increasing land clearing? • Will not likely occur
	Finance and incentives	Mixed	Are incentives and funds for FLR available? • Yes, funds will likely be available for restoration – proposal. Depends on whether government provides funding • Some funds are likely available for FLR but not for plantations • Only MTC (Myanmar timber companies) can log but they sub contract the work • Timber export funds some restoration
		No	Are incentives and funds for FLR accessible? • No

The participants discussed that, while several enabling conditions are in place, other conditions are not fulfilled and therefore need attention. For instance, there needs to be an institutional or coordinating mechanism in place to support implementation of FLR, with clear roles and responsibilities. The right market conditions also need to be in place.

- **Session 3: Stakeholder mapping for restoration (including gender analysis and youth participation)**

In session 3, the participants were asked to identify stakeholders for FLR at national, sub-national and local levels. The main outcomes of the discussion can be found in the table on the following page.

Stakeholders identified in Session 3

National stakeholders	Government institutions: • Agriculture, forestry, fisheries, livestock • Mining, energy, construction • Rural development • General Administrative Department (political support, land allocation coordination) • Military (land owners) • Settlement and Land Registration Department • Ethnic affairs • Ministry of Planning and Finance • Department of Meteorology • Ministry of Education Others: • Universities, research institutions • Members of Parliament (MPs) • International organizations and donors • National NGOs • Various national committees (NRCA?) • Chamber of Commerce • Myanmar Timber Merchant Association • Media
Sub-national stakeholders	• Local government (State and regional) • Line ministries • GAD • Large-scale investors, private sector • Land Management Committee • State and regional MPs • Ethnic organisations • Media
Local stakeholders	• Local communities • Local civil society organizations (CSOs) • Village Tract Administration

	• Community forestry groups • Loggers (legal and illegal) • Influential armed groups • Local businesses, entrepreneurs • Religious leaders • School teachers • Farmers' associations • Youth leaders of women and men
Special considerations (need to involve)	• Widows • Labourers • Landless • Disabled

A participant asked if there are examples of working groups from other countries and whether these involved the ministerial level. **Ms. Mirjam Kuzee** responded that in Rwanda, an inter-ministerial working group was put in place under the Vice-President's Office. In Malawi, an FLR task force was set up, delegated by the Minister. Some of these structures were only temporary, others became permanent. **Ms. Li Jia** added that in Indonesia, a bottom-up structure has been put in place in the form of a knowledge group.

Dr. Tint Lwin Thaung added that the media can play an important role in conveying the message to a wider audience and providing a sense of ownership.

8.   Closing remarks

Ms. Li Jia closed Day 1 of the workshop by emphasizing two key messages:
- *Go beyond forestry*: This message was highlighted in the panel discussion. For successful FLR, it is important to involve other ministries and departments not traditionally involved in restoration.
- *Focus on ecosystem services*: In order for restoration initiatives to be successful, it is important to consider the ecosystem services that trees and forests can provide, such as biodiversity and goods and services for forest-dependent communities.

Ms. Li Jia also provided a set of questions to be discussed during the field visit on Day 2:
- What are the ecosystem services/functions being restored in the landscape we are visiting?
- What are the ecosystem services/functions to be restored?
- How do you think we can restore them?
- What are the existing governance structures for the landscape?
- How do we solve the conflicts between different demands for ecosystem services from the landscape (e.g. the need for timber, the need for biodiversity habitat, watershed protection, construction areas)?

Ms. Zin Myo Thu introduced the schedule of the field visit, and closed Day 1.

DAY 2

9.   Field visit to see best practices for FLR opportunities

On the second day of the workshop, participants visited several sites in Yedashae Township, Taungoo District to learn from Myanmar's experiences with reforestation and to discuss best practices for FLR opportunities.

The participants briefly visited **a village in Taungoo District** and learned that this village had previously been located in reserved forest area, but had been transferred to the authority of the Ministry of Home Affairs. The villagers have 30-year tenure over the land. Each household has around two to three hectares for farming. Some villagers practise shifting cultivation and have a community forest.

The group then visited a **Modified Myanmar Selection System demonstration site**. Participants learned about the classification system for wood. The last official logging in this area took place ten years ago, but since then there has been a lot of illegal logging activity. The forest is located close to the road and is therefore vulnerable to illegal logging. The participants also observed some of the enrichment plantings that had been undertaken.

Modified Myanmar Selection System demonstration site

The group also learned about different efforts of restoration undertaken in this area, as well as about the ten-year reforestation plan. The Taungoo District Forest Department Officer explained that according to the restoration plan and based on the available budget, 35 per cent of the open forest area will be restored. He explained that consultations with local communities were held only for community forest and shifting cultivation areas. The plan only includes land under the authority of the Forest Department, and therefore does not include agricultural land.

The participants also spoke to four local community members who are part of a **community forestry user group**. In response to a question about the benefits they get from the community forest, the community representatives identified non-timber forest products (NTFPs) such as bamboo shoots and various other species. The land is owned individually, but managed collectively. Decisions are taken by consensus. No women are represented in the community forestry group, but as the heads of households the men represent the household.

The community forest is located outside the reserved forest area, in the category of protected public forest. The members are also allowed to use minor forest products from adjacent forest areas. If they harvest products for commercial purposes (such as bamboo shoots or honey), they pay a small fee. Out of 120

households, only nine villagers are part of the community forestry user group. The benefits of the user group include strong tenure to manage the land (30-year user right, including for fuelwood).

The participants also visited a **privately-owned teak plantation**. The government provided a 30-year lease for this plantation, which was previously located in protected forest.

Teak plantation and seed production area (SPA)

DAY 3

10. Observations from the field visit and introduction to Day 3

Ms. Li Jia summarised the main observations from the field visit. She reminded participants that FLR is not just about planting trees, but about restoring a productive, resilient landscape.

She mentioned that the sites visited on Day 1 provided excellent examples of ecosystem services, such as timber and bamboo, biodiversity and habitat for wildlife, and benefits for local communities from community forests. She also highlighted the silvicultural practices observed during the field visit, including plantations, enrichment plantings, and natural regeneration.

Ms. Li Jia also mentioned the reforestation plan put forward by the Forest Department, which highlights the planning approach. For a more comprehensive FLR approach, however, we need to look at the greater landscape, not only the land under the authority of the Forest Department. It will be important to reach out to other stakeholder groups, such as ministries, departments, and local communities, who have valuable local knowledge on how to manage their forests.

11. ROAM session 4: Forest landscape restoration mapping

Ms. Mirjam Kuzee introduced Session 4 on forest landscape restoration mapping. This interactive mapping exercise was aimed at familiarizing participants with spatial planning and discussing trade-offs in a landscape.

Ms Kuzee reminded participants that successful restoration mapping should make use of both local and scientific knowledge. Also, we need to consider a broad range of mapping criteria, such as physical and ecological data, socio-economic data (e.g., poverty, food security, proportion of women), institutional data, and land use and land cover data. Ideally, the data used should be recent, accurate, and at an appropriate scale.

The layers provided in the exercise included:
1) Land use land cover data;
2) Water bodies/rivers;
3) Slopes; and
4) Protected areas.

The participants were asked to 'stack' or overlay the different layers, and to select ten squares in which restoration should be prioritised. They were asked to consider criteria such as sedimentation, value for tourism, villages nearby, etc.

The breakout groups were facilitated by:
1. Mr. Jake Brunner (IUCN) and Dr. Bill Jackson (TRI)
2. Mr. Timothy Boucher (TNC)
3. Ms. Allison Lewin (TNC)
4. Ms. Li Jia and Dr. Scott Perkin (IUCN)

A summary of the discussions in each of the breakout groups is provided below.

<u>Group 1</u>

Group 1 discussed different considerations to prioritize restoration interventions. These considerations include: different stakeholders; politics and security issues; roads and infrastructure; demographics; access to markets; flood risks; riverine areas; and soil erosion. The areas selected for restoration included plots in the buffer zone of the protected area, areas along the river as well as in the degraded community forest near the village. Group 1 also explained that it is important to encourage participation; what is on the map may not be what the community wants.
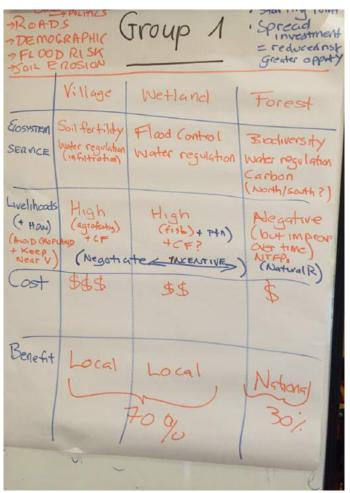
They also discussed whether restoration activities should be focused on one site, or spread over different locations. They decided that it would be more advantageous to spread their efforts over different sites, in order to reduce the risk and demonstrate different approaches in different parts of the landscape (agroforestry, assisted natural regeneration).

They analysed different decision criteria in a table (see below); the criteria include ecosystem services (such as soil fertility, water regulation, flood control, carbon sequestration), livelihoods, costs and benefits.

For the area in the buffer zone of the protected area, the participants mentioned that livelihoods may be affected negatively in the short term, as the villagers will not be allowed to cut timber and allow grazing. However, over the long term there will be more benefits, although these are at the state level/public sphere, rather than at the individual/community level. The participants also suggested introducing a system of payment for ecosystem services (PES) to compensate the villagers for their efforts to restore the buffer zone.

In the areas with steep slopes near the village, they proposed to introduce agroforestry by making some mechanical changes to the site (contouring). This intervention will be costly but also beneficial to the villagers. Along the river on flat land, restoration will be less costly and will be done mainly through natural regeneration and some enrichment planting.

Criteria matrix used in the mapping exercise by group 1

Group 2

Group 2 had similar discussions and outcomes as Group 1. They prioritized areas close to village, as well as restoration of fallow land. In addition, they considered aspects of biodiversity conservation and erosion control. They also prioritised restoration in watershed areas and nearby the river, as these provide important ecosystem services.

Group 3

Some of the criteria considered by this group were the overarching objective of community development, as well as economic and biophysical success factors/enabling conditions for restoration. They noted that the landscape approach is important for identifying opportunities and selecting restoration strategies.

They selected areas for agroforestry development near the village, in order to provide benefits to the villagers and reduce their dependency on the reserved forest, as well as areas for enrichment planting both within the reserve forest where the biophysical conditions for re-growth were good and around the wetland to sustain a clean water supply for the community downstream. They also highlighted the importance of considering financial returns, as well as benefits that can be generated over a short period of time.

For the additional layers, they suggested that demographics, government administrative boundaries and soil quality/fertility would be important layers to add. It will also be important to assess whether the community is in favour of these interventions. Sometimes, local communities fear that forest areas will be taken over by the government. Therefore, it is important to build a common understanding and trust among the beneficiaries. There is also a need for clear land use policy guidelines, and a need to work in unison with other sectors.

Group 4

Group 4 based their decisions on the restoration objectives that had been identified in session 1. The selected restoration sites include areas near the village for agroforestry to increase productivity and community forestry to provide a source of fuelwood and reduce pressure on the natural forest; areas near the stream to restore wetlands in order to conserve fish and migratory birds; steep slopes to stabilise erosion; and areas near the protected area to protect wildlife and provide opportunities for ecotourism. Access to markets will be an important consideration, and the possibility of introducing organic farming should be considered. Drought and flood conditions also need to be taken into consideration.

The group suggested that other baseline data needed would include demography, roads, fishery resources, pasture land, erosion, types of crops, hydrology, and the economic value of ecosystem services.

Reporting back after breakout group sessions

12. Data considerations for FLR mapping

Mr. Timothy Boucher, Senior Conservation Geographer, TNC, gave a presentation on data considerations for FLR mapping highlighting the importance of verifying data quality, using land cover data as one example of an important layer used for decision-making in FLR. He noted that, based on his analysis for Myanmar, accuracy of data on degraded forest is relatively low. We also need to be aware that there are different definitions of degraded forest. ALARM considers forests with less than 80 per cent canopy cover as degraded, while FAO considers forests with less than 40 per cent canopy cover to be degraded.

It will be important to decide whether the data we have is sufficient to provide the answers for FLR planning. For FLR decision-making, we need to know how much degraded forest we have and where. Data needs to be ground-truthed to provide the necessary accuracy at the township scale. If we take decisions based on inaccurate data, our assumptions may be wrong. For instance, we may think that restoring certain areas may improve water supply, but if it is based on inaccurate data, this may not be the case.

It is therefore very important to understand the limitations of the data layers when undertaking FLR planning.

A participant suggested that it will be important to start classifying land and come up with good maps, so that the next generation has the necessary data. Collaboration among different ministries and departments will be important.

13. Discussion: Identify available data and data gaps

Mr. Jake Brunner (IUCN) then asked the audience to discuss available data and data gaps for FLR in Myanmar. For a national ROAM assessment, the existence of these datasets would need to be confirmed and their quality assessed. For instance, in terms of carbon, some data is available from ALARM about above-ground biomass, but this data would need to be verified, as the data does not specify the type of forests.

For biodiversity, while there is still limited data on species/wildlife in certain protected areas, more information will become available as surveys are being carried out. For instance, the Critical Ecosystem Partnership Fund (CEPF) is supporting FFI to conduct freshwater biodiversity surveys in the upper reaches of the Irrawaddy.

The participants were asked to note down information on available datasets and data gaps. The outcomes are summarised in the table below. **One participant** noted that it will be important to have trends over time, not only historic data (predictions for future).

Dr. Trevor Self (FAO) also highlighted that it will be important to determine what data is sufficient, as not all of these datasets will be needed to answer the questions that the ROAM assessment will be aiming to address.

Datasets	Availability / sources of information
• Carbon	Not available
• Hydrology, watershed regulation, infiltration rates • Water bodies • Sedimentation • Livestock and fisheries • Types of crops, species, cropping calendar • Erosion, slopes • Soil fertility	Ministry of Agriculture, Livestock and Irrigation • Water Resources Department • Irrigation Department • Livestock and Fisheries Department • Department of Agriculture; local knowledge; Forest Department • Land Use Division
• Biodiversity	MONREC, WCD, FOW, WCS
• Fuelwood • Forest boundary, forest change • Ecosystem services • KBAs and species	MONREC, Forest Department
• Transportation	Ministry of Transport
• Poverty alleviation, GDP, employment	• Planning Department (2014 Census) • General Administration Department
• Demographic layer	Ministry of Immigration / 2014 Census
• Alternative income (NTFPs)	MONREC, MOT
• Climate condition (precipitation, drought, temperature)	Meteorology and Hydrology Department (MHD)
• Government policies	MONREC
• Land use land cover • Urban settlements, mining and dams	GIS unit Myanmar Information Management Unit (MIMU)
• Roads	Ministry of Construction

14. ROAM session 5: Economics and Finance

Ms. Mirjam Kuzee (IUCN) introduced the ROAM component on economics and finance. She also explained the nine steps of doing a cost-benefit analysis (CBA) for FLR. The nine steps are listed below:

1. Specify the set of restoration transitions
2. Decide whose benefits and whose costs count
3. Catalogue the impacts and select the measurement of indicators
4. Predict the impacts quantitatively over the time horizon of the project
5. Monetize all impacts
6. Discount benefits and costs to obtain present values
7. Calculate NPV of each alternative
8. Perform sensitivity analysis
9. Make policy recommendation

Ms. Mirjam Kuzee highlighted that it is important to include values of ecosystem goods and services in CBA because omitting them biases land use decisions towards the production of marketable goods and services. It is also possible to conduct CBAs for particular social groups to identify benefits and costs that are specific to these groups.

She also emphasized that, while economic valuation enables us to analyse the benefits and costs of FLR interventions, some values cannot be measured and monetized. CBA is a tool to support decision-making but decisions should not be based solely on the outcomes of CBA.

Mr. Jack Hurd, Deputy Managing Director, Asia-Pacific Region, TNC, then gave a presentation on Financing Considerations for FLR.

He highlighted that, in order to attract the right financing for FLR, there are certain assumptions or pre-conditions that should be met. These preconditions are shared goals, shared metrics, complementary policies and practices, and institutional mechanisms. If these elements are in place, various investors are more likely to put money into the landscape.

Mr. Jack Hurd also explained that we need to distinguish between two types of investments:
- Enabling investments for the creation of public goods and services (e.g., land use plans, policy reforms, human and institutional capacity development, regulatory and enforcement capacity); and
- Asset investments for the creation of private goods and services (e.g., agricultural plantations, planning and management for natural forest extraction)

It is important that both types of investments be made. For instance, in order to attract investments from the timber industry in sustainable forest management, the right policies, institutional mechanisms and planning processes need to be in place. Countries also need to consider tax incentives that encourage or discourage certain behaviours.

International investors generally look at the following criteria.
1. Structural elements (e.g., ability to market logs freely on an open market)
2. Legal and tax implications (e.g., land titles, right to use land)
3. Operational conditions (e.g., no prescription on the timing of harvest)
4. Social and environmental conditions (e.g., certifications on environmental and social standards)

Dr. Trevor Self, Food and Agriculture Organization of the United Nations (FAO), gave a presentation on Financing Options for FLR.

He emphasized that financing decisions should be driven by a shared vision of the country. The short, medium and long-term goals can then be derived from this vision. FLR is not a one-time act; it needs sustained action and sustained financing.

Dr. Trevor Self then showed several investment options and priorities and explained that land users themselves are in fact the largest investors in FLR, although their investments are not always monetized. The rural population spends time and labour on landscapes, so FLR can try to influence their investment. He also showed different returns of investments in FLR. Different types of interventions have different returns.

The current donor support to Myanmar provides an opportunity to lay the foundation for sustained financing of natural resource management in the medium and long term. However, it will be important to

use this support based on a clear national strategy and to set up the enabling environment for the next stage, in order to diversify funding in the long term.

Mr. Jake Brunner noted that during the field visit, the participants learned that teak plantations can be highly profitable, with estimated gross profits of several million USD per hectare after 30 years. It will be important to facilitate greater community participation and reduce risks in order to facilitate investments in FLR.

Dr. William Jackson asked if there were any examples of governments taking out risk in order to attract private or NGO investment. **Mr. Jack Hurd** responded that for private investors, in terms of risks, tenure is important. It is also critical to ensure that social and economic objectives of adjacent communities be met, in order to reduce the risk of conflict. Another important point is to identify products that can be marketed, and provide training to local communities.

A participant from the Livestock Veterinary Department, Katha Township, added that it is important to address poverty, and noted that this can be done not only through agriculture, but also by promoting livestock. Livestock can be an important source of secondary income and reduce the dependency on forests for the livelihoods of rural communities.

15. Plenary discussion on ROAM components and scaling up FLR

Ms. Mirjam Kuzee (IUCN) summarized the key outcomes of the ROAM sessions and played a video showing an example of upscaling in Malawi. She reminded workshop participants that FLR is about restoring functionality, and about bringing people together to identify, negotiate and implement FLR activities.

FLR can help address the needs of both upstream and downstream communities, as these are inter-linked within a landscape. She explained that the ROAM sessions in this workshop had been designed to help participants gain a better understanding of:

1. FLR objectives in Myanmar
2. Diagnostics for FLR (are we ready?)
3. Stakeholder analysis (who should be involved at different levels?)
4. Transitions, potential technical interventions in the field
5. Cost-benefit analysis and financing

16. Next steps on FLR

Dr. William Jackson (TRI) introduced the last session on next steps on FLR in Myanmar. He mentioned that Myanmar is facing similar issues as other countries, and that we can learn from experiences elsewhere. There are some good examples of engaging communities living in forest landscapes. He also emphasized that it will be important to verify the assumptions that we are making when designing technical interventions, in order to ensure that the solutions are actually addressing the problem.

Dr. William Jackson asked the participants for feedback about the workshop, and about what they found most valuable. **Dr. Tint Lwin Thaung** mentioned that FLR is a new concept for many trained foresters and many professionals in rural landscapes, and therefore it was valuable to learn about the differences between FLR and conventional ways of forest restoration. It was also valuable to discuss the challenges, and options for cross-sectoral collaboration. Dr. Tint Lwin Thaung suggested that a small working group be set up to discuss next steps with the Director General of the Forest Department. The working group should be multi-sector and also include civil society organizations.

Dr. William Jackson mentioned that the participants can contact Ms. Zin Myo Thu for any further questions. He encouraged them to share what they have learned with other colleagues. He also mentioned the need to work within the capacity that is available and to manage expectations of the stakeholders, as forests grow slowly. He explained that he will be consulting with stakeholders about the TRI Myanmar project during the field mission scheduled for February 2017. He mentioned that he looked forward to designing a project that can help support the changes that Myanmar would like to see for its forest landscapes.

17. Closing remarks

On behalf of Dr. Nyi Nyi Kyaw, Director General, Forest Department, **U Bo Ni, Director, Watershed Management Division, Forest Department**, thanked the participants for their great efforts to achieve the objectives of the workshop on Restoring Myanmar's Degraded and Deforested Landscapes.

He mentioned that the knowledge gained from this workshop will support the government's efforts on restoration of forest ecosystems in the country. On behalf of the Director General, he expressed his sincere thanks to IUCN, TNC, FAO and the University of Queensland for their contributions to make this workshop a success, and noted that he will look forward to successful cooperation on the ground. He also thanked the representatives from various government institutions and NGOs for their participation, and UK aid for their financial support to this event.

Dr. Scott Perkin, Head of Natural Resource Group, IUCN Asia, closed the workshop by thanking MONREC, and especially the Forest Department for hosting and co-organizing this workshop. He also thanked TNC for their help in organizing the workshop and for their financial support. He also acknowledged the financial support of UK aid for this event. He thanked the IUCN and TNC team, as well as all speakers and facilitators, the interpreter, the masters of ceremony, and all participants for attending the workshop. He concluded by saying that he looked forward to taking the FLR agenda forward in Myanmar.

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Link to presentations:
https://www.dropbox.com/sh/llisd2ksmse4i9t/AAAGoXx-HQcZeC7WMpPYRb-pa?dl=0

Link to news article:
https://www.iucn.org/news/restoring-myanmar%E2%80%99s-degraded-and-deforested-landscapes-through-forest-landscape-restoration

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Appendix 1: Agenda
Workshop on Restoring Myanmar's Degraded and Deforested Landscapes

When: 9-11 November 2016 (2-day workshop and 1-day field visit)

Where: Thingaha Hotel, Nay Pyi Taw, Myanmar

Organizers: Forest Department(FD), IUCN (International Union for Conservation of Nature), and The Nature Conservancy (TNC). The workshop is co-funded by TNC and UK aid from the UK government through its KNOWFOR programme.

Participants
The workshop will be attended by senior policy and decision-makers at multiple levels of government as well as technical staff, including from the Ministry of Natural Resources and Environmental Conservation (MONREC), the Ministry of Planning and Finance, and the Ministry of Agriculture, Livestock and Irrigation, as well as representatives from civil society, international organisations, the private sector, bilateral and multilateral agencies, and academia (approximately 50-60 participants in total).

Objectives
The objective of the workshop will be to support Myanmar's efforts to restore degraded and deforested landscapes by introducing the concept of Forest Landscape Restoration (FLR) and by developing a restoration planning roadmap for Myanmar using the Restoration Opportunities Assessment Methodology (ROAM). The workshop will:
- Improve participants' understanding on drivers of deforestation and degradation in Myanmar.
- Take stock of Myanmar's restoration goals and options.
- Take stock of successful restoration initiatives, e.g., conservation agriculture, reforestation, plantations and species selection, etc.
- Introduce The Restoration Initiative (TRI) project, funded by the Global Environment Facility (GEF).
- Introduce and enhance understanding of the FLR approach and discuss how it can support Myanmar's restoration and sustainable development goals.
- Introduce the Restoration Opportunities Assessment Methodology (ROAM) and its key components through interactive sessions and discussions.
- Develop a restoration action plan (FLR roadmap) for Myanmar.
- Identify stakeholders for restoration planning.

Intended Outputs
Common understanding of FLR and ROAM among stakeholders.
Next steps for assessing and prioritizing FLR opportunities in Myanmar identified (including information to guide the development of the GEF TRI project in Myanmar).

Background
Myanmar has one of the highest percentages of forest coverage in Asia with over 45% of the country covered with forest (FRA, 2015). However, in recent years, Myanmar has seen significant deforestation at an annual rate of 1% (FAO, 2015). Over the period from 1975 to 2010, closed forest areas decreased almost by half, while total forest area decreased by around 25% (FRA, 2015).Over-exploitation and illegal logging, shifting cultivation, expansion of agricultural lands and rapid expansion of urban areas are all contributing to the degradation of Myanmar's forests, but the underlying degradation drivers are more to do with the institutional frameworks affecting people and forests, such as conventional forest administration and lack

of public participation, insufficient state budget, and absence of a clear, inclusive land-use policy (FAO, 2015).

To address the challenges of deforestation and forest degradation, the Myanmar government has established an extensive system of reserved forests and protected areas. It has also had a long history of reforestation activities, including mass plantation projects since the 1970s and community forestry developments.

However, much of the reforestation efforts have not seen very good survival rates. State Counsellor Daw Aung San Suu Kyi has given a clear directive to MONREC to develop a new policy to promote reforestation and restoration. The FD has already begun an effort to take stock of what types of reforestation activities have taken place and what has been learned to inform a more promising way forward. IUCN and TNC have indicated that they would like to support the FD by drawing on some of the existing global expertise and experience in FLR and sustainable forest management.

To scale up successful restoration practices and initiatives, an inclusive and participatory landscape approach is required. FLR is an integrated approach that seeks to ensure that forests, trees, and the functions that they provide are effectively restored, conserved, and employed on a landscape-scale to help secure ecological integrity and sustainable livelihoods for the future. To help address this need, IUCN developed the **ROAM**, a flexible and affordable methodology, which has been used in several African and Latin American countries to identify and analyse FLR opportunities that are ecologically, economically and socially feasible. Successful FLR and ROAM implementation will not only increase carbon sequestration and capacity to adapt to climate change through low-emission development strategies, but also create multiple other benefits, such as expanding habitats and migration corridors for biodiversity, enhancing food production, reducing soil erosion, and yielding clean water supplies. Furthermore, FLR also helps combat poverty through the creation of rural jobs and improving access to natural resources.

References

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Agenda

	Activity	Presenter/Facilitator
Day 1 **Setting the scene: The morning will begin with keynote speeches to set the context, and will be followed by a High Level Panel on FLR in Myanmar and a plenary discussion. In the afternoon, there will be presentations on best practices and ROAM, as well as group discussions to agree on FLR objectives, identify stakeholders, and analyse the enabling conditions for FLR.**		
08:30-09:30	Registration	
09:30-09:40	Opening remarks	H.E. U Ohn Win, Union Minister for Ministry of Natural Resources and Environmental Conservation
09:40-09:50	Opening remarks	Dr. Scott Perkin, Head of Natural Resources Group, Asia, IUCN
Group photo and tea break		
10:15-10:30	Workshop objectives and agenda	Ms. Li Jia, Forest Landscape Restoration Coordinator, Asia, IUCN
10:30-11:30	Keynote speeches: Bonn Challenge and FLR: a global restoration movement	Ms. Mirjam Kuzee, Forest Landscape Restoration Assessment Coordinator, Global Forest and Climate Change Programme, IUCN
	Introduction to The Restoration Initiative (TRI)	Dr. William Jackson, Consultant, TRI
	From reforestation to restoration	Dr. Tint Lwin Thaung, Myanmar Country Program Director, TNC
	Myanmar's national forest policy objectives	U Bo Ni, Director, Watershed Management Division, FD
11:30-12:00	Forest and land degradation in Myanmar: current status, trends and drivers	Daw Thiri Hmway Maung Maung Project Specialist, ECODEV
12:00-13:00	High Level Panel Discussion: Restoration needs and goals for Myanmar (facilitated discussion and questions from the audience) Facilitated by Mr. Jake Brunner, Head of Indo-Burma Group & Ms. Zin Myo Thu (IUCN)	1. Dr. Nyi Nyi Kyaw, Director General, Forest Department 2. U Ba Kaung, Director, Dry Zone Greening Department 3. U Htin Aung Shein, Deputy Director, Department of Agricultural 4. U Ohn Lwin, Director, Mining Department 5. Dr. Zaw Lwin Tun, Director, Irrigation and Water Utilization Department
Lunch		
14:00-14:20	Technical session Learning from our experience to date: presentation on previous and ongoing restoration initiatives in Myanmar	U Ba Kaung, Director, DZGD
14.20-14.40	Technical introduction to FLR and best science	Prof. Dr. David Lamb, University of Queensland
	Introduction to ROAM and its key components	Ms. Mirjam Kuzee, IUCN
14.40-15.00	Q&A	
15.00-15.15		
15:15-15:30	Introduction to breakout sessions	Ms. Mirjam Kuzee, IUCN
Tea break		
15:45-17:15	ROAM breakout sessions (30 mins each): Session 1: Identifying restoration objectives and challenges (scoping exercise)	Facilitators: Angela Joehl Cadena, IUCN & Dr. Tint Lwin Thaung, TNC

	Session 2: Analysis of enabling conditions for FLR	Facilitators: Ms. Li Jia & Dr. William Jackson, TRI
	Session 3: Stakeholder mapping for restoration (including gender analysis and youth participation)	Facilitators: Ms. Zin Myo Thu & Dr. Scott Perkin, IUCN
17:15-17:45	Groups report back to plenary-discussion	Group reporters, facilitated by Mr. Jake Brunner, IUCN
17:45-18:00	Closing remarks Introduction to the field trip	Ms. Li Jia and Ms. Zin Myo Thu, IUCN
18:30-20:00	Reception	

Day 2 Field visit to see best practices for FLR opportunities.		
09:00-17:00	Field visit to Yedashe Township, Taungoo District	

Day 3 Sessions on the different components of ROAM continued: Mapping, economics and finance strategies. Identification of information gaps and FLR road map		
09:00-09:20	Observations from the field visit& introduction to day 3	Ms. Li Jia and Ms. Zin Myo Thu, IUCN
09:20-10.30	ROAM sessions continued (introduced by Ms. Mirjam Kuzee): Session 4. Forest landscape restoration mapping Interactive mapping exercise (3 parallel breakout groups)	Breakout groups facilitated by: 1. Mr. Jake Brunner (IUCN) 2. Mr. Timothy Boucher, Senior Conservation Geographer, TNC 3. Ms. Allison Lewin, TNC 4. Dr. Bill Jackson, TRI 5. Ms. Li Jia (IUCN)

Tea break		
10:45-11:15	Groups report back to plenary-discussion	Group reporters, facilitated by Mr. Jake Brunner (IUCN)
11:15-11:45	Data considerations for FLR mapping	Mr. Tim Boucher (TNC)

Lunch		
13.00-13.30	Discussion: Identify available data and data gaps	Facilitated by Mr. Jake Brunner (IUCN)
13.30-14.45	ROAM sessions continued: Session 5. Economics and finance (plenary session) ROAM overview: economics and finance Assessing the economic value of different land use options Financing and FLR Data gaps and Q&A	Ms. Mirjam Kuzee (IUCN) Mr. Jack Hurd, Deputy Managing Director, Asia-Pacific Region, TNC Dr. Trevor Self, FAO Facilitated by Ms. Allison Lewin (TNC)

Tea break		
15:00-15:30	Plenary discussion on ROAM components and scaling up FLR	Facilitated by Ms. Mirjam Kuzee (IUCN)
15:30-16:00	Next steps on FLR	Discussion facilitated by Dr. Bill Jackson (TRI)
16:00-16:10	Closing remarks	Dr. Nyi Nyi Kyaw Director General of Forest Department Dr. Scott Perkin, Head of Natural Resource Group, Asia, IUCN

Appendix 2: Participants List

1. Relevant Government Authorities

No.	Name	Title	Organization	Telephone Number	E-mail
1.	U Ohn Win	Union Minister	Ministry of Natural Resources and Environmental Conservation		
2.	U Saw June Shwe Ba	Managing Director	Myanmar Timber Enterprise		
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No.	Name	Title	Organization	Telephone Number	E-mail
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29.	U Tint Wai	Deputy Director	Department of Rural Development Katha District		
30.	Dr. Kyaw Htun	Deputy Director	Livestock Breeding and Veterinary Department, Katha District		
31.	U Chit Oo	Assistant	Watershed Management Division		

No.	Name	Title	Organization	Telephone Number	E-mail
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33.	U Chan Myae Aung	Range Officer	Watershed Management Division		
34.	Daw Aye Thi Ko (MC)	Range Officer	Watershed Management Division		
35.	Daw Wai Nyein Aye (MC)	Range Officer	Watershed Management Division		
36.	Dr. Zaw Lwin Tun	Director	IWUMD		
37.	U Khin Zaw	Director	IWUMD		
38.	U Than Myo Aung	Deputy Director			
39.	U Than Hlaing	Director General	Department of Survey		
40.	U Khin Maung Yi	Permanent Secretary	Ministry of Natural Resources and Environmental Conservation		
41.	U Zaw Myo Aung		Watershed Management Division, FD		
42.	U Phyo Thet Naing		Watershed Management Division, FD		
43.	U Se Lalai Phyo		MONREC		
44.	U Myo Thein Htike		Watershed Management Division		

2. INGOs/NGOs and other relevant stakeholders

No.	Name	Title	Organization	Telephone Number	E-mail
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5.	Ms. Mirjam Kuzee	Forest Landscape Restoration Assessment Coordinator	IUCN		Mirjam.Kuzee@iucn.org
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3. Media

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3.	Daw Kay Thwe San		Sky Net	09 420 717 973	
4.	U Maung Sein		MWD TV	09 261 963 132	
5.	U Zin Ko Ko		MWD TV	09 261 963 132	
6.	U Soeya		7 Day TV	09 973 124 280	
7.	Daw Moe July		MRTV	09 428 154 603	
8.	U Aung Myo Oo		MTE	09 428 138 919	
9.	U Kyaw Kyaw Aung		Survey	09 250 963 709	
10.	U Thent Zin Aung		MWD TV	09 254 154 217	
11.	U Aye Chan Aung		MRTV 4		
12.	U Aung Hlaing Win		MWD Daily		

Appendix 3: Press Release

**Restoring Myanmar's degraded and deforested landscapes
through Forest Landscape Restoration**

Nay Pyi Taw, Myanmar, 9 November 2016 — IUCN (International Union for Conservation of Nature), the Forest Department of the Ministry of Natural Resources and Environmental Conservation (MONREC) and the Nature Conservancy (TNC) are jointly organising a workshop aimed at supporting Myanmar's efforts in restoring its degraded and deforested landscapes.

The three-day workshop, which will be held from November 9 to 11, will focus on introducing Forest Landscape Restoration (FLR) to participants. FLR is an integrated approach that seeks to ensure that forests, trees, and the functions that they provide are effectively restored, conserved, and employed on a landscape-scale to help secure ecological integrity and sustainable livelihoods.

The workshop opened today with keynote speeches to set the context, followed by a high-level panel on FLR in Myanmar and a plenary discussion. The participants were also introduced to the Restoration Opportunities Assessment Methodology (ROAM). ROAM is a tool that provides a framework for countries to rapidly identify and analyse areas that are primed for FLR, and to identify specific priority areas for restoration at a national or sub-national level.

Myanmar has one of the highest percentages of forest coverage in Asia, with over 45 percent of the country covered with forests. However, in recent decades, the country has experienced significant deforestation and forest degradation due to unsustainable logging practices, high demand for fuelwood, as well as agricultural conversion.

Myanmar also has limited data on how its forested lands are being used.

"Successful implementation of approaches like FLR and ROAM would not only increase carbon sequestration and capacity to adapt to climate change through low-emission development strategies, but also create other benefits. This includes expanding habitats and migration corridors for biodiversity, enhancing food production, reducing soil erosion, and yielding clean water supplies," said Mr. Jake Brunner, Head, Indo-Burma Group for IUCN.

On the second day of the workshop, participants will visit Yedashe Township in Taungoo District to learn from Myanmar's experiences with reforestation and discuss best practices for FLR opportunities. The sessions on the final day are dedicated to developing a restoration planning roadmap for the country using the ROAM methodology.

"To reverse the significantly increasing trend of deforestation in Myanmar, State Counsellor Daw Aung San Suu Kyi has called for a new policy to promote reforestation and forest restoration," said His Excellency U Ohn Win, Union Minister of Natural Resources and Environmental Conservation, in his speech addressing all participants during the opening of the workshop. "We need to build on your vast experience and knowledge when developing a roadmap for restoration planning in Myanmar. We must engage all relevant stakeholders including those whose activities may directly or indirectly impact the forest estate."

"The Forest Department has also been generating lessons from reforestation efforts in Myanmar over several years," said Dr. Tint Lwin Thaung, Myanmar Country Program Director, TNC. "We believe that the time is right to reflect and build on this experience and to work with Myanmar stakeholders to define a future for Myanmar's forest estate in which it is able to support sustainable and equitable development.

Taking a landscape approach to restoring the country's prized forests is going to be a critical part of that process."

Workshop participants were also introduced to The Restoration Initiative (TRI). Funded by the Global Environment Facility (GEF), TRI supports effective restoration and conservation of degraded landscapes to help secure ecological integrity and sustainable livelihoods for the future.

Senior policy-makers and technical staff from various government agencies, as well as representatives from civil society are attending the workshop.

The workshop is co-funded by TNC and UK aid from the UK government through its Knowledge and Tools for Forest Landscape Restoration project (KNOWFOR) implemented by IUCN.

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NOTE TO EDITORS:

The Restoration Initiative (TRI) project in Myanmar

The $3 million forest restoration project is a component of the $54 million global project called The Restoration Initiative, funded by the Global Environment Facility (GEF). The project recognises that after decades of over-extraction, Myanmar's forests are commercially exhausted and that the focus now needs to be on forest restoration and environmental recovery. The project will be executed by the Ministry of Natural Resources and Environmental Conservation (MONREC) and its Forest Department, with IUCN acting as the GEF Implementing Agency.

About IUCN

IUCN is a membership Union uniquely composed of both government and civil society organisations. It provides public, private and non-governmental organisations with the knowledge and tools that enable human progress, economic development and nature conservation to take place together.

Created in 1948, IUCN is now the world's largest and most diverse environmental network, harnessing the knowledge, resources and reach of 1,300 Member organisations and some 15,000 experts. It is a leading provider of conservation data, assessments and analysis. Its broad membership enables IUCN to fill the role of incubator and trusted repository of best practices, tools and international standards.

IUCN provides a neutral space in which diverse stakeholders including governments, NGOs, scientists, businesses, local communities, indigenous peoples organisations and others can work together to forge and implement solutions to environmental challenges and achieve sustainable development.

Working with many partners and supporters, IUCN implements a large and diverse portfolio of conservation projects worldwide. Combining the latest science with the traditional knowledge of local communities, these projects work to reverse habitat loss, restore ecosystems and improve people's well-being.

Website: www.iucn.org/asia | Facebook: iucn.asia | Twitter: IUCNAsia

Government of Myanmar

The Forest Department is included in the Ministry of Natural Resources and Environmental Conservation (MONREC). This ministry is responsible for the country's forestry and logging sector's.

Myanmar is a strategic country in terms of biodiversity conservation. Because of Myanmar's size and geographic position, it is influenced by three distinct bio-geographical regions: the Himalayan to the north and west, the Indochinese to the east, and the Sundaic to the south. As a result, Myanmar is blessed with an extraordinarily rich natural heritage and global conservation value – it is home to 10% of the world's freshwater turtles and tortoises on just over 1% of the world's land area.

The Nature Conservancy

The Nature Conservancy (TNC) is a leading conservation organization working in over 30 countries around the world to conserve the lands and waters on which all life depends.

TNC's Asia Pacific Forest Program has been active in the region for 25 years, providing science-based support to governments, communities and businesses to link policy and financial incentives for sustainable forest management to better practices on the ground. In Asia-Pacific, TNC is best known for its practical, solution-oriented approach to addressing major drivers of ecosystem loss and degradation, and its unique ability to facilitate and manage complex partnerships.