

# INTERNATIONAL TROPICAL TIMBER ORGANIZATION (ITTO)

## REDUCING DEFORESTATION AND FOREST DEGRADATION AND ENHANCING ENVIRONMENTAL SERVICES IN TROPICAL FORESTS (REDD-ES)

### PROJECT DOCUMENT

TITLE	CAPACITY BUILDING FOR DEVELOPING REDD+ ACTIVITIES IN THE CONTEXT OF SUSTAINABLE FOREST MANAGEMENT
SERIAL NUMBER	RED-PD 038/11 Rev.3 (F)
SUBMITTED BY	GOVERNMENT OF THE REPUBLIC OF THE UNION OF MYANMAR
ORIGINAL LANGUAGE	ENGLISH

#### SUMMARY

Myanmar is one of the forest rich countries in the tropical region. Its forest has contributed to the provision of abundant and indirect benefits to local, regional and global communities especially in reducing Green House Gas (GHG) emissions and enhancing forest carbon stocks and environmental services. Toungoo District in Bago Yoma Region of Myanmar is approximately 1,064,939 ha and will be used as the project site. Implementation on Reducing Emissions from Deforestation and forest Degradation and Enhancing Forest Carbon Stocks (REDD-plus) through sustainable forest management requires understanding and participation by all stakeholders. As concept and methodologies of REDD-plus are new to Myanmar, capacity building and awareness raising for all level of stakeholders are crucially important, and urgently needed. Accordingly, the development objective of this project is to contribute to sustainable forest management of Bago Yoma Region to improve the provision of environmental services and reduce GHG emissions from deforestation and degradation and enhancement of carbon stocks. The specific objective of the project is to strengthen capacity of the Ministry of Forestry in REDD-plus initiatives. The expected outputs are (i) REDD-plus national strategies prepared, (ii) Institutional setting for capacity building on REDD-plus strengthened and (iii) Capacity to conduct MRV of carbon stock built.

EXECUTING AGENCY FOREST DEPARTMENT, MINISTRY OF ENVIRONMENTAL CONSERVATION AND FORESTRY (MOECAF)

COOPERATING GOVERNMENTS -

DURATION 36 MONTHS

APPROXIMATE STARTING DATE TO BE DETERMINED

BUDGET AND PROPOSED SOURCES OF FINANCE	Source	Contribution in US\$	Local Currency Equivalent
	<b>ITTO</b>	<b>571,890</b>	
	Gov't of Myanmar (in-kind)	73,802	
	<b>TOTAL</b>	<b>645,692</b>	

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**Map of project site (Toungoo District Forest, East Bago Yoma Region, Myanmar)**

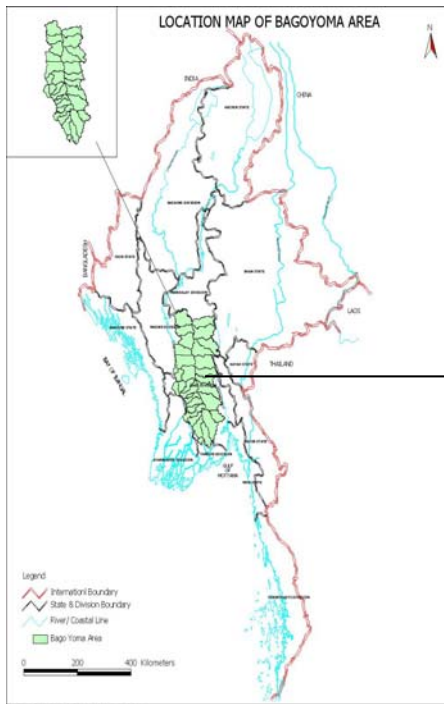


Figure 2 - Location Map of Bago Yoma Area

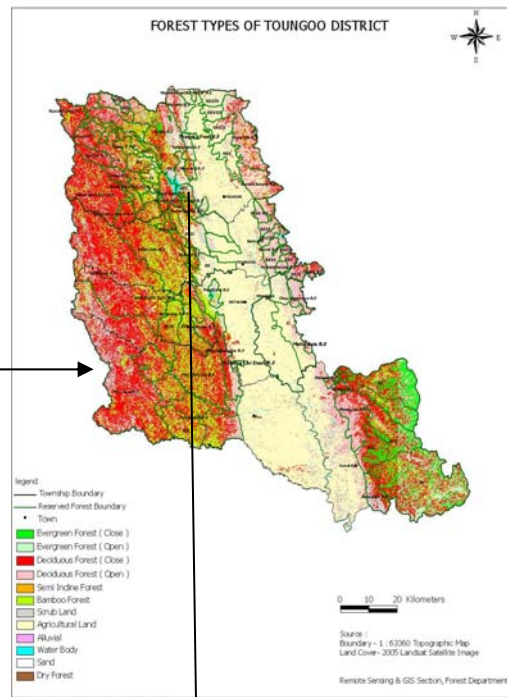
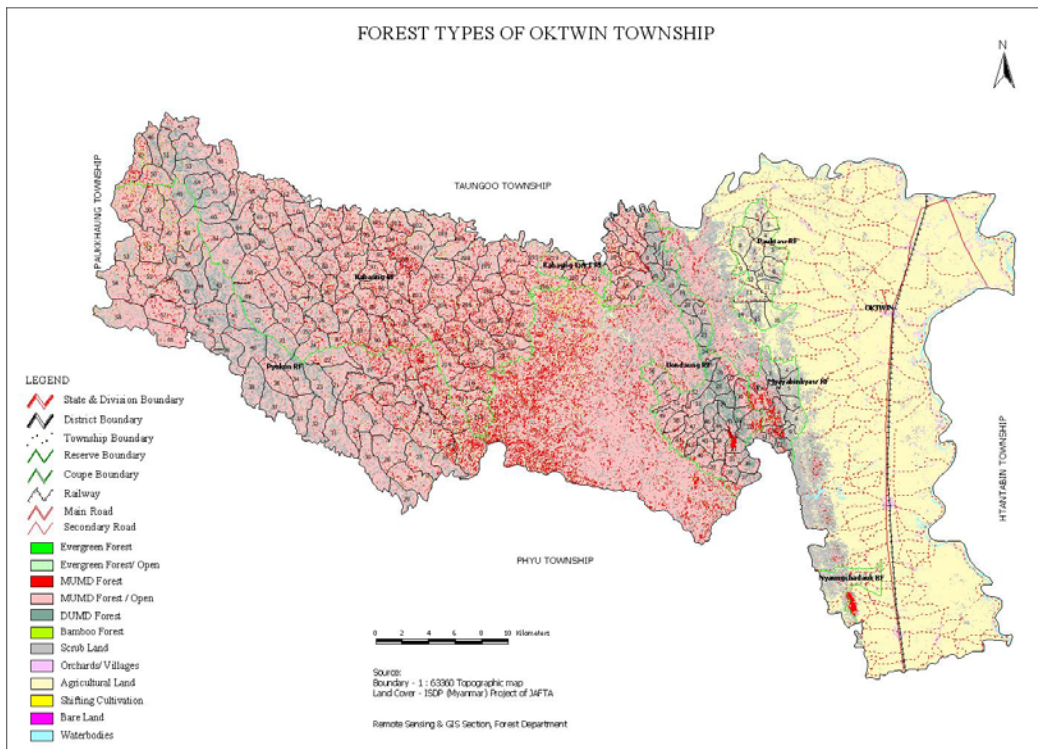


Figure 4 - Forest Types of Toungoo District



Location of REDD-plus demonstration sites to be established in Oktwin Township, Toungoo District

## PROJECT BRIEF

Myanmar has been managing its natural forests with Myanmar Selection System (MSS) since over hundred years. MSS is exploitation-cum-cultural system and it is practiced with the bound of space-area limit (felling series), size (girth) limit and time limit (30 years felling cycle). Exploitation of trees is within the bound of Annual Allowable Cut (AAC). MSS has been considered the practice which causes the least damages to the remaining natural forests. However, there are concerns that the assumptions for the above factors in the implementation of MSS are not being met consistently and thus affecting the productivity of the natural forests and surrounding environments.

The introduction of Criteria and Indicator (C & I) for sustainable forest management (SFM) and Reduced Impact Logging (RIL) systems and practices have indeed reduced the logging damage, improved stand conditions and ensures sustained yield of timber. It is thus opportune that further improvements to the current management practices be implemented to further enhance the productivity of the residual stand and reduce forest degradation in terms of total carbon stocks as well as other ecological factors. However, such sustainable forest management practices may incur significant additional costs both to the logging operators as well as the government. The REDD+ mechanism under the UNFCCC currently being discussed, presents an incentive that may encourage implementation of improved management practices to reduce deforestation and forest degradation and enhance forest carbon stocks. Accordingly, the objective of this project is to build the capacity of ministry of forestry and relevant stakeholders in order to utilize Sustainable Forest Management (SFM) as a mitigation tool in combating climate change.

In Myanmar, the emissions to be accounted for REDD mechanism would probably come from both deforestation and degradation due to various causes. Research regarding the major drivers of deforestation and forest degradation in the project site will be done through field survey and documentation of the forestry data. In order to capture and learn the whole picture of REDD+, demonstration activities will be implemented in the project site. Reference level of carbon emissions of the project site will also be set through a reliable Monitoring, Reporting and Verification (MRV) system. In addition, a crucial aim of this project is to build capacity amongst stakeholders and communities on the importance of SFM and climate change mitigation. This could be implemented through awareness programmes such as organizing workshops and meetings for policy makers, forest officers, field staff, local communities and relevant stakeholders. Information on the project's findings could be disseminated as well for better understanding of deforestation and forest degradation in the country through outreach activities (i.e. publications, seminars, workshops). Then, national REDD+ strategy will be developed based on the experiences gained throughout the project implementation.

## LIST OF ABBREVIATIONS

APAFRI	Asia-Pacific Association of Forestry Research Institutions
CFDTC	Central Forestry Development Training Centre
C&I	Criteria and Indicator
DZGD	Dry Zone Greening Department
ECCDI	Ecosystem Conservation and Community Development Initiatives
ECODEV	Ecosystem Development
FAO	Food and Agriculture Organization
FD	Forest Department
FREDA	Forest Resource Environment and Development Association
FRI	Forest Research Institute
GHG	Green House Gas
ITTO	International Tropical Timber Organization
IUCN	World Conservation Union
IUFRO	International Union of Forest Research Organization
MERN	Mangrove Ecosystem Restoration Network
MOECAF	Ministry of Environmental Conservation and Forestry
MSS	Myanmar Selection System
MTE	Myanma Timber Enterprise
NGOs	Non-Governmental Organizations
REDD	Reducing Emissions from Deforestation and Forest Degradation
REDDES	Reducing Emissions from Deforestation and Forest Degradation and Environmental Services
PES	Payment for Environmental Services
PSD	Planning and Statistics Department
SFM	Sustainable Forest Management
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UOF	University of Forestry

## PART I: PROJECT CONTEXT

### 1.1 ORIGIN

This project is the capacity building and demonstration activities designed to enhance the capacity of the Forest Department (FD) of the Ministry of Forestry (MoF) as well as line ministries and stakeholders in sustainable management of forest ecosystems under the REDD-plus initiatives. The project will have direct contribution to reducing emissions from deforestation and forest degradation, and increasing carbon sinks through forest conservation, sustainable forest management, and enhancement of carbon sinks by restoring degraded forests in Myanmar. This project has a great potential for sustainable development of forest dependent communities while improving forest ecosystem functions which contribute multiple benefits to the society as a whole. In line with the recent developments on REDD-plus initiatives, this project will be implemented in accordance with ITTO guidelines for the restoration, management and rehabilitation of degraded and secondary tropical forests.

REDD-plus is a major opportunity for tropical forest conservation. Myanmar has recognized that REDD-plus is an innovative concept that can complement ongoing forest policies. Myanmar is also aware of REDD-plus as a mechanism to create an incentive for developing countries to protect, better manage and wisely use their forest resources, contributing to the global fight against climate change. REDD-plus strategies aim to make forests more valuable standing than they would be cut down, by creating a financial value for the carbon stored in trees. Once this carbon is assessed and quantified, the final phase of REDD involves *developed* countries paying *developing* countries carbon offsets for their standing forests. REDD-plus is a cutting-edge forestry initiative that aims at tipping the economic balance in favour of sustainable management of forests so that their formidable economic, environmental and social goods and services benefit countries, communities, biodiversity and forest users while also contributing to important reductions in greenhouse gas emissions.

The COP 15 which was held in Copenhagen, 2009 recognized the increasingly important roles of reducing emissions from deforestation and forest degradation, forest conservation, sustainable forest management, and enhancement of carbon sinks in developing countries (REDD-plus). The FD of Myanmar is very keen to initiative REDD-plus mechanism since about 48% of total country area is forested. Myanmar has very much potential to contribute mitigating climate change by conservation existing natural forests and restoration of degraded forests across the country.

In addition, Myanmar recognizes the relationship of the deforestation and forest degradation with the increase in emissions of greenhouse gasses (GHGs) and the reduction of carbon sequestration potential. Thus Myanmar continues to emphasize the significance of sustainable management of existing sinks and reservoirs, as fulfilling the commitment outlined in the Convention on Biological Diversity (CBD), which is ratified in 1994. Myanmar also developed its own Criteria and Indicators (C&I) based on ITTO Guidelines for Sustainable Management of Natural Tropical Forests. Currently, Myanmar has been implementing the C&I as part of the measures to reduce emissions and improve sustainability.

The proposed project is based on national priority and recommendations identified by the international organization such as ITTO and UN-REDD programme that capacity building is needed at all levels in order to fully implement REDD-plus. Concept and implementing of REDD-plus are of relatively new to tropical countries and Myanmar is no exception. Until now, there is no readiness fund allocated for the capacity building on REDD-plus, payment for environmental services (PES), demonstration activities, measuring, reporting and verification (MRV) for Myanmar. Furthermore, the need for intensive REDD-plus capacity building and demonstration activities was also recommended during the nation level REDD workshop, which was jointly organized by the Forest Department and United Nations Development Programme (UNDP-Myanmar) in April 2010. Forest Department also showed its great interest on REDD-plus initiative by organizing second national level REDD workshop along with the disaster risk reduction workshop in November 2010. As a outcome of workshops, FD and UNDP successfully established a multi-stakeholder network including government line ministries, UNDP, FAO, IUCN, NGOs, which plays very important role to initiate REDD-plus readiness initiatives in Myanmar. Accordingly, this proposal is timely come out and it was developed in consultation with the

multiple stakeholders to contribute to mitigation climate change and improving environmental services.

## 1.2 RELEANCE

### 1.2.1 Conformity with ITTO's objectives and priorities

In supporting the sustainable management of forest resources in Myanmar, this project is highly relevant to the objectives c, d, f, j, m, n and r stipulated in the ITTA 2006, as follows:

- (c) Contributing to sustainable development and to poverty alleviation;
- (d) Enhancing the capacity of members to implement strategies for achieving exports of tropical timber and timber products from sustainably managed sources;
- (f) Promoting and supporting research and development with a view to improving forest management and efficiency of wood utilization and the competitiveness of wood products relative to other materials, as well as increasing the capacity to conserve and enhance other forest values in timber producing tropical forests;
- (g) Developing and contributing towards mechanisms for the provision of new and additional financial resources with a view to promoting the adequacy and predictability of funding and expertise needed to enhance the capacity of producer members to attain the objectives of this Agreement;
- (j) Encouraging members to support and develop tropical timber reforestation, as well as rehabilitation and restoration of degraded forest land, with due regard for the interests of local communities dependent on forest resources;
- (m) Encouraging members to develop national policies aimed at sustainable utilization and conservation of timber producing forests, and maintaining ecological balance, in the context of the tropical timber trade;
- (n) Strengthening the capacity of members to improve forest law enforcement and governance, and address illegal logging and related trade in tropical timber;
- (r) Encouraging members to recognize the role of forest-dependent indigenous and local communities in achieving sustainable forest management and develop strategies to enhance the capacity of these communities to sustainably manage tropical timber producing forests.

The project is an effective contributor to the social, economic, environmental and cultural aspects of forest management of the project and its location (Toungoo District in Bago Yoma Region) by improving its monitoring system. Additionally, the project will contribute to ITTO's work in relation to statistics, studies and information as stated in *Article 29* by generating new knowledge in relation to forest carbon stocks and tropical forest landuse changes.

### Compliance with ITTO Action Plan (2008-2011)

This project is directly linked to the actions by ITTO and possible actions by members of **Expected Outcome 5 under "Reforestation and forest management" of ITTO Action Plan (2008 - 2011).**  
**Expected Outcome 5: Tropical forest better secured**

Actions by ITTO	Possible actions by members
A Support studies and the exchange of lessons learned on the impacts on and implications for the PFE of forest law enforcement and improved forest governance	a Develop and implement effective mechanisms and relevant policy and legislative frameworks to secure and/or expand the PFE through, for example, land-use planning, tenure reform and market instrument.
B In cooperation with other organizations, monitor the potential implications for the resource base of climate change and the relevance and	b Undertake studies and analyses of the latest climate change predictions and report on the implications of these for the resource base at

appropriateness of policy developments	the national level using formats and systems that facilitate synthesis.
C Contribute to the national and international efforts in the prevention and management of forest fire	c Undertake measures for the prevention and management of forest fire
D In cooperation with relevant organizations, support studies and activities related to reducing deforestation and degradation and enhancing carbon stocks	d Develop pilot and full-scale activities that test carbon sink and carbon sequestration measures and capture new and additional financial resources to support this
E Assess opportunities for, and promote the development of, non-timber forest products and forest environmental services that can improve the economic attractiveness of maintaining the tropical timber resource base under SFM	e identify opportunities for and implement activities to capitalists on non-timber forest products and environmental services that further the security of the tropical timber resource base, taking into account the needs of forest-dwelling indigenous and local communities
F Support studies and other activities for the effective of forest-dependent indigenous and local communities in securing the PFE as the tropical timber resource base and contributing to poverty reduction	f Identify and implement innovative and socially sound interventions that contribute to poverty alleviation and improved livelihoods for forest-dependent people while securing the tropical timber resource base
G Support an understanding of the impact of emerging issues such as carbon sequestration and reduced emissions from deforestation and forest degradation (REDD) on tropical forest development	g Conduct analytical work, piloting activities and capacity building on deforestation, forest degradation and the enhancement of carbon sinks

In addition, this project is also related with the actions by ITTO and possible actions by members of **Expected Outcome 6 under “Tropical forest resource sustainably managed” ITTO Action Plan (2008 - 2011).**

<b>Actions by ITTO</b>	<b>Possible actions by members</b>
C Review progress on and new opportunities (e.g. REDD) for the management of secondary tropical forests, the restoration of degraded tropical forests and the rehabilitation of degraded forest land	c1 Implement research, capacity building and development activities for the management of secondary tropical forests, the restoration of degraded tropical forests and the rehabilitation of degraded tropical forest land, taking into consideration the ITTO guidelines
E Monitor the impacts of conservation, protection and transboundary areas and their relationships to achieving SFM	e In close collaboration with other relevant organizations and bodies, establish areas dedicated to biodiversity conservation in accordance with the ITTO Guidelines, including transboundary areas
F Provide guidance on improving the sustainable yield of timber and non-timber forest products and services by intensifying the silvicultural management of natural tropical production forests and by restoring degraded forests	f1 Improve productive capacity of natural forests through intensified silvicultural practices, including guided natural regeneration, enrichment planting and reforestation
G Promote the development of silvicultural, forest management planting and related skills in public institutions, commercial companies and communities by, inter alia, regional training needs analysis and the provision of support to regional centres of expertise	g Strengthen training institutions and intensify the training of forestry personnel and other stakeholders in ecosystem behavior, silviculture, RIL and resource assessment, and in the management of both natural forests and timber plantations

The project activities will include capacity building on sustainable forest management through series of workshops and trainings not only for field level staff but also decision makers. To support the



sustainable forest management, major drivers of deforestation and forest degradation in site specific conditions will be investigated during the project implementation. Demonstration activities will also be implemented through participatory approach.

### **Conformity with REDDES objectives and deliverables**

The project contributes to REDD-plus programme by helping to address the REED-plus core problem of inadequate capacity of ITTO producer member countries and their stakeholders to maintain and enhance environmental services of tropical forests by preventing and reducing environmental degradation.

The proposal conforms to the general and specific objective of REEDES Thematic Programme which states as follows:

The general objective of the Thematic Programme is to reduce deforestation and forest degradation enhance environmental services and help improve forest dependant livelihoods through sustainable management of tropical forests, forest restoration and other related activities.

The specific objective of the Programme is to strengthen the capacity of ITTO developing member countries and their stakeholders to:

- (a) reduce unplanned deforestation;
- (b) reduce forest degradation;
- (c) maintain and enhance climate change mitigation and other environmental services of tropical forests;
- (d) contribute to the social and economic sustainability and well-being of forest-dependent communities by increasing forest values through forest restoration and rehabilitation, as well as payments for forest-based environmental services; and
- (e) enhance adaptation and resilience of tropical forests to negative effects of climate change and human-induced impacts.

Furthermore,

#### **(a) Compliance with ITTO Thematic Programme; Reducing Deforestation and Forest Degradation and enhancing environmental services in Tropical Forests (REDDES)**

The project coherent with thematic programme objective under the following:

- Reduction of forest degradation in the project area
- Maintain and enhance climate mitigation and other environmental services of tropical forests
- Contribute to the social and economic sustainability and well being of forest dependent communities by increasing forest values through appropriate payment for forest based environmental service
- Awareness raising among decision makers and the public
- Potential for income generation activities realized from forest-related environmental services and other outputs in Programme impact areas
- Measurable outcomes of the project's pilot phase will contribute directly to Increase of the area under (actual) conservation in the tropical forests in Programme impact areas

The project supports the thematic programme scope under the following:

- Climate change mitigation and adaptation through enhancement of carbon pools in the forest and avoidance of emissions from degradation
- Maintenance and enhancement of biodiversity
- Improvement of soil and water conservation
- Ecotourism, amenity and recreation values
- Sustainable forest production

- Combination of various Environmental Services and other outputs within the SFM implementation

**(b) Conformity with REDDES Monitoring Protocol (MP)**

Conformity with REDDES Monitoring Protocol (MP) including Means of Verification

The results of the proposed project contribute to the achievement of the programme targets provided in the REDDES Monitoring Protocol (MP). It will contribute to the following target values and Means of Verification:

- Increased recognition and awareness of the values of tropical forests and their environmental services as evidenced from reports on stakeholder consultations and seminar proceedings
- Increased forest value and market opportunities for forest products and services in one Forest Management Unit (FMU) as indicated in accounting reports
- evidence of Payment for Environmental Services (PES) mechanisms having been developed and pilot tested in one FMU
- demonstration project with at least 1 community involvement in avoided deforestation and degradation, development of environmental services, as evidenced by final project report, visit reports.

**1.2.2 Relevance to the submitting country’s policies**

In view of the importance of the Myanmar forestry sector in enhancing national socio-economic development and ensuring ecological balance and environmental stability, the 1995 Myanmar Forest Policy was formulated in a holistic and balanced manner within the overall context of the environment and sustainable development taking full cognizance of the forestry principles adopted at UNCED. It formalized the commitment and intent of the Government to ensure sustainable development of forest resources while conserving wildlife, plants, and ecosystem.

Sustainable management and conservation of Myanmar’s forests have been accorded a high priority by the Government. Efforts are being advanced to ensure that the flora and fauna are conserved for future generations.

Myanmar has also ratified the Convention on Biological Diversity in 1994 and the United Nations Framework Convention on Climate Change in 1994 and the Kyoto Protocol in 2003. Myanmar has adopted its own National Forest Policy, National Policy on Biological Diversity, as well as the National Policy on Environment.

Forest Policy (1995) has identified six imperatives: (a) Protection of soils, water, wildlife, biodiversity and environment; (b) Sustainability of forest resources; (c) Basic needs of the people for fuel, shelter, food and recreation; (d) Efficiency to harness the full economic potential of the forest resource; (e) Participation of the people in the conservation and utilization of the forests; and Public awareness about the vital role of the forests.

The Forest Policy identified ten important objectives of which the following four objectives are particularly relevant to the proposed project.

(a) Protection and Management

To decide development unclassified and protected public forest areas strategically located in the country to extend existing areas under forest reserves and the protected areas system in order to ensure sustainable forest management with the object of minimizing social and environmental benefits for the country and its population; restoration of ecological balance and biodiversity conservation;

(b) Forestry Planning

To initiate the development planning for the forestry sector to achieve sustainable development in resource production, processing and marketing, biodiversity conservation and restoration of ecological balance;

(c) Institutional Strengthening

To ensure that the basic goals of forestry, environmental protection and increased economic benefits to be achieved from forests and forestry are reflected in the institutional structure; and

(d) People's Participation and Public Awareness

To enlist people's participation in forest sector development activities in order to provide "people-based-development" as also create public awareness and mass motivation for protection and conservation of forests.

The forestry sector in Myanmar is an important role in providing environmental protection, particularly those related to climate change, and a major economic role in generating incomes through timber utilization in the country.

Permanent forest estate (PFE) covers 28 % of total land area of the country and is composed of Reserved Forests, Public Protected Forests and Protected Area System (National Parks, wildlife sanctuaries numbering in excess of 35). PFE includes both protection and production forests, to be maintained and managed as forest in perpetuity. This being amongst Myanmar's commitments to the UNFCCC, where Land Use, Land Use Change and Forestry (LULUCF) activities should promote the long-term sustainable management of forests and their resources.

Myanmar, being a developing country, has to utilize the forest resource for its economic and social development. Keeping in line with the new forest policy, the Forest Department practices the balance approach towards conservation and development issues implicit in the concept of sustainable forestry. The major concerns of the forestry sector of Myanmar are nature conservation and maintenance of environmental stability. The Ministry of Forestry is committed to achieving sustainable development of forests and biological resources through ratification and accession to a number of international conventions and agreements. With the experiences accumulated over a period of a century and half with respect to forest management, the Forest Department of Myanmar in close cooperation with relevant partners will continue to conserve the country's valuable natural forest resources. There are several programmes and operational activities related to environmental conservation and natural resources management being implemented at the national level with national and international funding support.

The efforts of Forest Department are in line with the National Programme on Environmental Conservation which aims to mainstream climate change through wise management of resources and enhanced environmental conservation. The programme also has among others the following principles and strategic thrusts:

- to conserve forests and woodlands and take measures in various sectors to reduce air and water pollution;
- to control dumping of industrial waste and conserve wildlife;
- to lay down a new policy in which we will work for economic development in parallel with environmental with environmental conservation;
- to mobilize participation of the people and social organizations in the tasks for environmental conservation and create renewable energy at low cost and
- to review and amend laws and enact new laws on environmental conservation.

### 1.3 Target area

The principal target project site would be Toungoo District, Bago Yoma Region and target beneficiaries would be the local communities within and around the Toungoo District. All lands and Forests belong to the Government in Myanmar and thus forests in Toungoo District of Bago Yoma

Region have been managed by the Forest Department, Ministry of Environmental Conservation and Forestry.

### **1.3.1 Geographic location**

Toungoo District is located in Bago Division of Bago Yoma Region (between the latitude 18° 15' to 19° 59' N and longitude 95° 51' to 96° 45' E), Myanmar. It is about 300 km far away from Yangon (formal capital) and about 150 km away from Nay Pyi Taw (capital of Myanmar). Toungoo District is composed of five townships, namely Toungoo, Yedashe, Oktwin, Phyu and Htantapin covering an area of 1,064,939 ha.

### **1.3.2 Social, cultural, economic and environmental aspects**

#### **(a) Social and cultural aspects**

##### **Social aspect**

The population of the District is about 120,334 with a density of 65 persons per km<sup>2</sup> and an annual growth rate of 2.3 percent. The demographic structure of the Toungoo District shows common pattern as other rural areas of Myanmar such as low density of population, high birth rate and relative high out migration. The male population of the district constitutes 54.7% while the female takes 45.3%. The dependency ratio is approximately 1:1.

There are more male-headed households than female-headed households; males are seldom recorded as spouses. On the other hand, females are recorded more as spouses than as heads of household. Marriage in the area includes formal unions by ordinance, traditional or religious rites and informal co-habiting unions. The societal expectation that a man should be able to provide economic support for his family even in the face of economic hardship tends to delay marriage in the area. Naturally, larger proportions of females than males are married in the District. This may be because men, who normally have to bear the cost of getting married, have to ensure that they are adequately prepared before marriage.

Literacy is an important indicator of social development and such high levels of literacy across the districts indicate development in most parts of the region because every village has at least primary school and Buddhist monastery. Therefore, literacy rate is as high as 95 percent in the District like other parts of the country. The area has high proportions of both males and females with high school education. In this case this could be explained by the presence of sufficient numbers of schools across the District. Every community in the district has a chief and his elders which is hereditary. They also have elected Community Committee members with the guidance of elders, Buddhist monks and authority. Because of rich forest resources, Toungoo District is potentially one of the richest regions of the country. Yet in terms of infrastructure and educational facilities, the area needs to be improved.

##### **Cultural aspect**

There are many communities living around and close to the forest areas that are directly involved in forest-based jobs such as logging activities, enrichment planting and other restoration activities. The prosperity of the local community is also attainable through their involvement in wood industries, such as sawmill, plywood, wood-based handicraft, furniture factory as well as non-timber forest products. At the same time, the forest is important for many local communities that depend on them for subsistence, cultural and spiritual needs.

Culturally, ethnic groups residing in and around the forest areas use forest in different ways for their daily life. In Myanmar, there is religious pluralism, in which a wide variety of religious preferences exist side by side. Buddhism is the largest religion in the Toungoo District as well as in Myanmar. In the District, Buddhism predominate with over a population of 80 percent. As such the conservation and management of forests particularly production forests on a sustainable basis and for REDDES will have an impact on the local communities.

## **(b) Economic condition**

The mainstay in the rural area of the *Toungoo* District is subsistence farming. Land for farming in the District is acquired mainly through the share cropping system. The average farm sizes for agricultural crops range between one and ten acres. The major food crops grown are rice, variety of beans, sugarcane, groundnut and sesame. Alternative livelihood option is limited in the area. Livestock production is on the rise especially pig, goats, poultry farming because of the abundance of grazing lands across the District. Rural communities in the area are largely dependent on forest resources for their livelihood. Most of local people collect fuelwood, poles & posts, non-timber forest products, bamboos etc from the forests for subsistence consumption.

The economy of the district is mixed consisting of large traditional agricultural sector made up of mostly small-scale peasant farmers, also dependent on NTFP harvesting and processing, a growing informal sector of small businessmen, artisans and technicians and an insignificant proportion in the processing and manufacturing sector. The major occupational structure in the district is agriculture, which absorbs 60.4% of the total labour force in the district. Population engaged in industry and service is comparatively small. In view of the fact that agriculture is also in the hands of peasant farmers using rudimentary tools and methods of farming it has serious negative implication on output levels. The service sector is dominated by public servants, traders who serve as middlemen between farmers and middle women, and those in the communication sector and drivers. Hotels and restaurants contribute a very small labour force. The contribution of industrial sector to the local economy is very low.

Natural forests of *Toungoo* District are surrounded by a number of communities and others are even located in the heart of this area. By virtue of these communities proximity to this area they depend on it for their livelihood. In try access goods and services from the forest for their living local communities are engage in unsustainable shifting cultivation for food and cash crops as well as illegal logging. Owing to these practices natural forests are being over-exploited leading to deforestation and degradation. The impact of this is that there is reduced supply of forest products as well as environmental services such as increased CO<sub>2</sub> emissions, loss of biodiversity and reduction of reduced water quality and supply, increased soil erosion. Recent studies indicate that there has been significant reduction in number of plant species including NTFP producing plants as compared to about five years ago. This increases the vulnerability of local communities to climate change as well as loss of economic development opportunities for local populations living in and around forest areas.

The interventions from this ITTO project are tailored at mitigating effects of these challenges in *Toungoo* Districts of Bago Yoma Region and improving the livelihood of the communities living in and around the District. Along with the target activities of capacity building and awareness on REDDES, the livelihood of communities would be improved through creation of alternative livelihoods in the Bago Yoma Region.

## **(c) Environmental aspects**

### **Topography, geology and soil**

*Toungoo* District Forest is located on the eastern aspect of Bago Yoma Region. The altitude of the project site is between 300 m and 800 m. The geological formation of Bago Yoma region consists mainly of tertiary sedimentary rock. The region consists of beds of slate-clay and sandstone. The slate-clays weather easily and form a clayey soil, which dries out and become hard in the weather. The sand stone varies from a yellow soft stone, which appears to yield a soil very suitable for teak, to a much more resistant greenish micaeous homogenous rock. In most places, the shaley rocks and sandstones are so mixed that the resulting soil is a remarkably uniform loam. The rocks in the region have been subjected to a certain amount of metamorphism towards the east. Throughout the Bago Yoma region, the rocks are folded and dip in all directions. The mature soils are found mainly on the lower and flatter localities where soil forming processes have been at work for a long time. In hilly localities where even forested, erosion is continuous and tends to remove the products of the weathering of the primary rocks as soon as formed. Most of the forest soils on the top are therefore of a skeletal nature. On the lower slopes the soils are deeper by reason of accumulation of wash from the

top and slopes, moister and more fertile. In general, the soils which are commonly found in Toungoo District Forest area Fluvisols, Ferralsols, and Gleysols.

**Location map of project site (Toungoo District Forest, East Bago Yoma Region)**

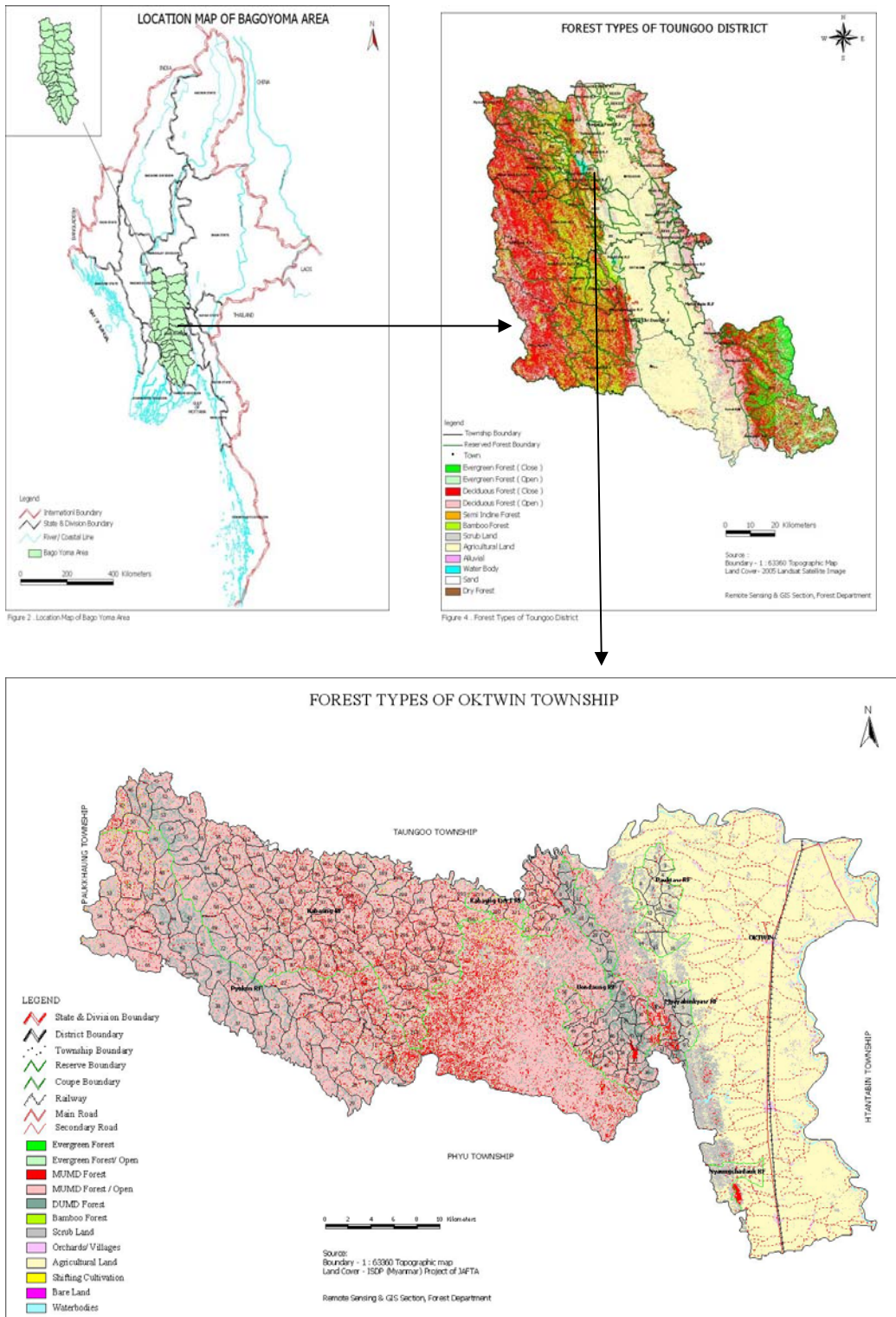


Figure 1. Location of REDD-plus demonstration sites to be established in Oktwin Township, Toungoo District

## (b) Climatic condition

The project site, Toungoo District in the Bago Yoma Region, has a tropical monsoon climate with a rainy season and a pronounced dry season. There is pronounced rainy season from May to October with ample rainfall coming from the Bay of Bengal. There are 6 well-marked dry months from November to May in the study site while wet from the end of May to October with a maximum rainfall in July and August. Mean annual rainfall is about 1775.5 mm and mean monthly temperature is about 27.5 C. The relative humidity is about 73 %.

## (c) Forest resource base

Deciduous forest is major forest type in the Toungoo District in Bago Yoma Region. However, within this type of forest an intricate mosaic pattern of moist deciduous forest, semi-evergreen forest and patches of dry deciduous forest areas can also be found. The different forest types and dense forest cover contribute to the biological diversity and enhancing ecosystem services including carbon sequestration capacity of Bago Yoma Region in particular and Myanmar as a whole. The most abundant tree species are teak (*Tectona grandis*), binga (*Mitragyna rotundifolia*), pyinkado (*Xylia xylocarpa*), padauk (*Pterocarpus macrocarpus*), thitpagan (*Millettia brandisiana*), thadi (*Protium serratum*), panga (*Terminalia chebula*), yon (*Anogeissus acuminata*), hnaw (*Adina cordifolia*), zaungbale (*Lagerstroemia villosa*) etc. The associated bamboo species found in Toungoo District Forest area kyathaung-wa (*Bamboosa porlimorpha*) and tin-wa (*Cephalostachyum pergracile*). Forest cover of Toungoo District is shown in Table 1.

Table 1. Forest cover of Toungoo District in Bago Yoma Region

No.	Forest type	Toungoo District	
		Area (ha)	Percentage
1	Evergreen	26,698.0	3.46
2	Moist upper mixed deciduous forest (MUMD)	539,283.4	69.8
3	Dry upper mixed deciduous forest (DUMD)	34,422.6	4.5
4	Lower mixed deciduous forest (LMD)	19,101.2	2.5
5	Bamboo and dipterocarp forest	52,002.2	6.7
6	Protected area	7,190.5	0.9
7	Plantation	43,744.3	5.7
8	Scrub lands	49,695.4	6.4
	Total forest land	772,137.3	100

Although the forest is relatively resilient ecosystem, its regenerative capacity will be greatly affected if disturbances incurred are beyond its withstanding limits. When this happens, the overall sustainability of the forest will be jeopardized. Thus, stringent measures must be taken so that the detrimental effects on the environment arising from forest production are kept minimum. The implementation of REDDES is expected to bring about positive impacts to the environment with lower impact management prescriptions and logging systems being tested.

The project would be helpful to provide information for formulating environmental-related policies relevant to climate change, nature conservation and protection in near future. There will be more initiatives in protecting the forests through activities such as tree planting and use of recycled paper.

## 1.4 Expected outcomes at project completion

This project will be a capacity building of Ministry of Environmental Conservation and Forestry, local communities and relevant stakeholders regarding reducing emission from deforestation and forest degradation and enhancing environmental services. In addition, the project will be a demonstration of avoided deforestation and forest degradation through effective participation of local communities and relevant stakeholders in forest conservation. It is envisaged that successful completion of this project will ultimately lead to sustainable management of forests in the Toungoo District of Bago Yoma Region. This project would result significant reduction in loss of forest biomass and consequent emissions. Enhancement in forest carbon stocks would have increased. Improvement in biodiversity,

watershed conditions and other environmental services are expected. Some lessons on extension activities, MRV of carbon stock, governance issues and benefit sharing arrangements for REDD-plus in Myanmar would be generated. Lessons on mainstreaming REDD-plus activities into SFM would emerge out of this study. In all, technical lessons learnt will be essential information for the development of overall national REDD-plus strategy for Myanmar. The results of forest carbon inventory and monitoring will be a significant contribution to the preparation of REDD-plus readiness in Myanmar. This project in particular will improve national carbon accounting and further strengthen Myanmar's commitment to the global climate agenda, particularly the UNFCCC and the Kyoto Protocol.

In essence, the situation upon completion of the project is expected to be as follows:

- (a) Series of trainings, workshops, seminars, education talks and consultation meetings will be held;
- (b) Capacity of staff of Ministry of Forestry, local communities in the project site and relevant stakeholders on REDD-plus readiness will be built;
- (c) Awareness raising about REDD-plus readiness will be increasing among stakeholders.
- (d) Standard operation guidelines and field procedures for MRV of carbon stock published;
- (e) Research findings on baseline carbon stock, reference scenario of carbon emissions, forest resource inventory will be published;
- (f) REDD-plus related livelihood improvement activities will be promoted in selected villages;
- (g) People's participation will be improved in REDD-plus readiness; and



## **PART II. THE PROJECT RATIONALE AND OBJECTIVES**

### **2.1 PROJECT RATIONALE**

#### **2.1.1 Institutional set-up and organizational issues**

Forest Department of the Ministry of Forestry will be the Executing Agency of the Project. Forest Department is responsible for various tasks especially conservation of forest resources, sustainable forest management, biodiversity conservation, watershed conservation, afforestation, reforestation and research & development. Under the Forest Department, there are 7 Divisions, namely, (i) Planning and Statistics Division, (ii) Natural Forest and Plantation Division, (iii) Wildlife Conservation Division, (iv) Watershed Division, (v) Budget Division, (vi) Training and Research Division, and (vii) Inspection Division. Two academic institutions, Forest Research Institute and University of Forestry, also belong to the Forest Department.

Forestry Research Institute (FRI), a branch of the Forest Department, has the prime mandate to conduct high quality, user-focused research that generates scientific knowledge and appropriate technologies which enhance the sustainable development, conservation, and efficient utilization of Myanmar's forest resources; and also to disseminate the information for the improvement of social, economic and environmental well-being of the people of Myanmar.

The Forest Department has over the years developed expertise in specialized areas in Forestry and related fields to include, Silviculture, Entomology, Forest botany, Forest ecology, Seed technology, Mensuration / Statistics, Genetics, Wood Science & Technology, Wood Products Chemistry, Socio-Economics and Marketing and Information Science. In line with the global trend, Forest Department has recently expanded its research and priority to include issues related to environmental conservation including biodiversity and climate change, forest industry and trade. In addition to main stream research activities, Forest Department and its Forest Research Institute also honour numerous consultancies related to capacity building, institutionalization and management of the forestry sector. Forest Department is well endowed with facilities and personnel/expertise for efficient execution of a plethora of research and development activities.

Forest Department recognizes that the impacts of climate change transcends across sectors, stakeholders and major group. Strategic responses are also necessary to strengthen the nation's position and readiness in combating and mitigating climate change. Forest Department formed a core unit since 2009 in order to undertake A/R CDM and REDD+ related activities. Core unit is composed of 21 members who are experts of forestry related fields such as silviculture, carbon accounting, growth and yield, forest inventory, extension, environmental conservation, remote sensing and geographic information system (RS/GIS), community forestry etc. Especially, a core unit is responsible for capacity building of the staff of Ministry of Forestry and line ministries and awareness raising regarding REDD+ mechanism. In addition, a core unit is also responsible for the formulation of A/R CDM and REDD+ readiness project. Under the direct supervision of the Forest Department, core unit has been doing to mainstream climate change through management and conservation of resources, integration of responses into national policies and strengthening institutional and implementation capacity. Similarly, a number of stakeholder consultations through seminars, workshops and meetings were conducted by the core unit under the guidance of Forest Department in relation to the issue on Reducing Emissions from Deforestation and Forest Degradation (REDD). As a result of these consultations, the national REDD+ strategy is currently being drafted.

Planning and Statistics Division of the Forest Department will be the responsible for the overall project administration while the role of Forest Research Institute is to strengthen the technical aspects of the project. Regarding capacity building aspect, Training and Research Development Division of the Forest Department will be responsible to implement the proposed activities. Extension Division of the Forest Department will be responsible for REDD+ and other related activities. GIS and RS section of the Planning Division of the Forest Department will be responsible to conduct MRV. REDD-plus core unit will be responsible for implementing the project activities under the supervision of Planning and Statistics Division of the Forest Department to fulfill the set objectives.

Planning and Statistics Division of Forest Department and Forest Research Institute have experiences in implementing ITTO projects so that they possess the capacity to contribute towards the successful implementation of the project. REDD-plus core unit will also be trained in competence areas like community leadership, forest management, REDD+ readiness activities and other relevant skills.

In order to address the environmental issues effectively, National Environmental Conservation Committee (NECC) was formed in 2011 and NECC is being led by the Union Minister for Forestry. Myanmar also has been preparing Environmental Law and it would be come out very soon. It reflects Myanmar's perspective on environmental conservation.

### **2.1.2 Stakeholder analysis through National Level Workshops on REDD in Myanmar**

First National Level Workshop on Reducing Emissions from Deforestation and Forest degradation (REDD) was jointly organized by the Forest Department of the Ministry of Environmental Conservation and Forestry and United Nations Development Programme (UNDP-Myanmar) on 9th November 2010 at the Ingyin Hall of Forest Department in Nay Pyi Taw, Myanmar. The workshop was attended by the representatives from the Ministry of Environmental Conservation and Forestry, Ministry of Agriculture and Irrigation, Ministry of Live Stock and Fisheries, Ministry of Education, Ministry of Health, Ministry of Home Affairs, Legal Institution, FAO, UNDP, UN-HABITAT and also representatives from local non-governmental organizations, and the invited guests totaling 56. The objectives of the first National Level Workshop were as follows:

- (a) To inform all relevant stakeholders about the REDD-plus;
- (b) To built capacity and to improve awareness raising of Forest Department staffs and relevant stakeholders about REDD-plus;
- (c) To establish the coordination mechanism among stakeholders including government ministries, UN agencies such as UNDP, FAO, UN-HABITAT, NGOs and local communities; and
- (d) To present enabling conditions in implementing REDD-plus as well as opportunities and constraints

In addition, second National Level Workshop was also jointly organized by the Forest Department of the Ministry of Environmental Conservation and Forestry and United Nations Development Programme (UNDP-Myanmar) from 10-11 November 2010 in Forest Department, Nay Pyi Taw, Myanmar. The objectives of the first National Level Workshop were as follows:

- (a) To built capacity and to improve awareness raising of Forest Department staffs and relevant stakeholders about REDD-plus;
- (b) To strengthen the coordination mechanism among relevant stalkholders for REDD-plus readiness;
- (c) To discuss and identify possible financial supports for capacity building for REDD-plus readiness; and
- (d) To formulate the future programme related to REDD-plus readiness in Myanmar.

National Level Workshops were officially opened by the Director-General of the Planning and Statistics Department and that of Forest Department, Ministry of Environmental Conservation and Forestry. The workshop was attended by the representatives from the Ministry of Environmental Conservation and Forestry, Ministry of Agriculture and Irrigation, Ministry of Live Stock and Fisheries, Ministry of Education, Ministry of Health, Ministry of Home Affairs, Legal Institution, FAO, UNDP, UN-HABITAT and also representatives from local non-governmental organizations, and the invited guests totaling 53.

A total of five papers were presented at the First National Level Workshop and 6 papers (4 papers focused on disaster risk reduction) at the Second National Level Workshop. The participants were divided into three groups and the following three thematic issues discussed.

- (a) Lack of capacities in formulating and implementing REDD-plus readiness

- (b) Lack of REDD readiness roadmap and national strategy
- (c) Weak in coordination and cooperation among stakeholders (government and non-government sectors) and lack of well established mechanism
- (d) Lack of participation of relevant stakeholders in forest resource conservation activities
- (e) Lack of research on major drivers of deforestation and forest degradation

Major outputs of the Second Workshop were as follows:

- (a) To build the capacity of Ministry of Environmental Conservation and Forestry and relevant stakeholders in REDD-plus readiness;
- (b) To find every possible means and ways to secure project financing for capacity building;
- (c) To establish REDD-plus demonstration plot for capacity building for measuring, reporting and verification (MRV) of carbon stock and REDD-plus related matters
- (d) To promote international cooperation to accelerate capacity building and aware raising of REDD-plus;
- (e) To include REDD-plus in the mainstream of national forest management plan; and
- (f) To prepare REDD readiness roadmap and REDD-plus national strategy through workshops and consultation meetings

In line with recommendations, Forest Department organized a Capacity Building Training on REDD-plus and CDM from 10 to 11 May, 2011 in Nay Pyi Taw, Myanmar, in which 35 participants from 18 Government Ministries were participated. The training subjects cover project proposal formulation, concept of REDD-plus, REDD-plus readiness activities, measuring, reporting and verification of carbon stock (MRV), application of GIS/RS in REDD-plus, current status and methodological aspect of CDM, CDM Programme of Activities and also field visit for tree carbon and soil carbon measurement. The participants were also informed the importance of Free, Prior Informed Consent (FPIC) in REDD-plus.

In addition, Regional Level Workshop on REDD-plus was also organized in cooperation with Korea Forest Service (KFS), UNDP (Myanmar office) and UN-REDD Programme. Regional level workshop is schedule was held from 12 to 13 May, 2011 in Nay Pyi Taw, Myanmar. The main objective was to formulate REDD-plus readiness roadmap and REDD-plus National Strategy in consultation with all relevant stakeholders and UN-REDD programme. The Regional Workshop was attended by representatives from Government Ministries, ASEAN Member States (AMS), Korea Forest Services, UN-REDD Programme, UNDP, FAO, UN-HABITAT, Wildlife Conservation Society (WCS), Japan International Cooperation Agency (JICA), local authorities, NGOs and invited guests totaling of 65. The main objectives of the REDD-plus Regional Workshop were:

- (a) To formulate REDD-plus national strategy and roadmap;
- (b) To inform the current status of REDD-plus readiness in Myanmar;
- (c) To learn and share experiences of REDD-plus readiness activities among ASEAN member states;
- (d) To discuss about potential financial mechanism for REDD-plus readiness in Myanmar.

With the technical assistance of UN-REDD Coordinator, basic framework of REDD-plus roadmap and National Strategies were identified.

Along with the National Workshop on ITTO Pre-project, entitled "Assessment of Mangrove Forest Affected by Cyclone Nargis to Facilitate the Development of an Integrated Mangrove Ecosystem Management in Ayeyawady Delta, Myanmar – PPD 143/09 (F)", this projected proposal was presented at the National Workshop. About 60 participants from Ministry of Forestry, line ministries, UNDP, JICA, local NGOs and local communities attended the workshop. All participants appreciated very much on REDD-plus initiatives in Myanmar and strongly recommended to focus REDD-plus capacity building and awareness raising as mentioned in this project proposal. Implementation of this research proposal would be very good foundation for REDD-plus readiness and initiatives.

Table 2. Stakeholders Analysis

Institutions	Characteristics	Problem/needs/	Potential	Involvement in the project
<b>Primary Stakeholders</b>				
Local communities (i.e., Oktwin, Yedashe, Phyu, Toungoo, Htantapin communities of Toungoo District) living inside and in the surrounding area of Bago Yoma Region	Highly dependent on natural resources (all forests are State-owned)	Lack of knowledge and skills, low level of awareness about REDD-plus, limited alternative income options Less opportunities to communicate with Government officials	Key player to implement project and conserve forest sustainably.	Involve in the activities related with restoration of degraded forests, establishment of demonstration site for MRV, participatory carbon monitoring, extension activities
Ministry of Forestry	Key element in the whole management of natural forests and planted forests	Weak coordination, limited human resource capacity, limited technology, insufficient infrastructures, weak law enforcement,  Problems of unsustainable management practices, climate change impacts, limited capacity to initiate REDD-plus	-Decision maker  - key player for planning and decision making processes	- Facilitate in the discussion, preparation and formulation of project proposal. Provide general guidelines for overall management.  - Take leading role in implementing and disseminating project outcomes
Forest Research Institute/ Forest Department (Implementing Agency/Executing Agency)	Key element in the technical aspect of whole project	Limited human resources, Limited infrastructure, Limited financial resources, Need to upgrade and technical cooperation	Only institution to conduct forestry related research  Key role in research & educational development in forestry sector	Facilitate discussion, preparation and formulation of project proposal. Take leading role in the dissemination of project findings as lessons learned for other sites. Take leading role in operational activities together with the management of Bago Yoma Region.
Planning and Statistic Division	Key element in the management of whole project	Limited human resources, Limited infrastructure, Limited financial resources, Need to upgrade and technical cooperation	Key role in international cooperation in forestry sector	Project administration, leading role in successful implementation of the project.
<b>Secondary Stakeholders</b>				
University of Forestry, Central Forestry Development Training Centre, Nan Chun Timber	Prominent institution in the development of technologies, methodologies, capacity building	Limited facilities, media, research facilities, limited access to updated information, limited budget to conduct research,	Play important role to produce well-trained foresters and staff to manage forests sustainably	Involve in the provision of scientific data. Involve in the development and promotion of technology required for operational SFM and REDD-plus in

Extraction Training centre, Pyinmana Timber Harvesting Training Centre, Myanma Forestry School	centre	limited capable resource persons,		the area. Involve in the various assessment and development of monitoring system, resource base inventory etc.
UN agencies (UNDP-Myanmar, UN-REDD, FAO, UN-habitats, Korea Forest Service)	Independent to organize NGOs and to communicate with Government Ministries	Limited REDD-plus planning, lack of linkage with national policy, lack of integration with forestry master plan	Key elements in coordination among relevant stakeholders	Involve in coordination mechanism, provide facilities and supports to the local communities and local NGOs for rural development activities, community forestry, extension activities
Local NGOs (FREDA, BANCA, ECCDI, MERN, ECODEV)	Play important role in the community development, extension and mediation	Lack of facilities, access to formal institutions, lack of resources, Lack of awareness, limited REDD-plus planning, lack of linkage with national policy, lack of integration with forestry master plan	High potential to cooperate with Ministry of Forestry in extension activities, conservation and participatory carbon monitoring	Involve in the community development and income generating activities, continue and expand the existing initiative, sub-contract
<b>Tertiary Stakeholders</b>				
Primary/middle and high schools in the Toungoo Districts	Active participation in environmental conservation	Limited knowledge, low level of awareness about ecosystem services, limited facilities, limited environmental education	High potential, new generation to conserve biodiversity and enhance environmental services	Involve in the extension activities such as public educational talks, poster and environmental exhibition, seminars
Ministry of Agriculture and Irrigation	Key player in preparing landuse plan	Weak coordination and cooperation with other ministries and agencies	Play in high potential involving land use and landuse changes	Involve in agro-forestry, income generating activities for local communities, extension activities
Local authority	Authorized body to monitor and coordinate every affair including forestry-related matters	Limited knowledge, low level of awareness about ecosystem services, limited facilities, limited environmental education	Key element to coordinate relevant Ministries, organizations and stakeholders	Involve in the coordination mechanism among stakeholdres

### 2.1.3 Problems to be addressed

Myanmar is covered with 48% or about 31,773,000 ha of forest. Of this 3.1% (988,000 ha) is classified as primary forest, the high biodiversity and carbon-dense form of forest. According to FAO 2011, annual loss of forest accounted for 273,250 ha during 1990 and 2010.

#### *Lack of REDD-plus national strategy*

Myanmar forest resources play an important role not only to fulfill the basic needs of rural people but also to contribute to the national economy. Myanmar is striving to sustain its valuable forest resources. It is necessary to reappraise its situation from all angles as there are several issues and problems to be addressed.

REDD-plus mechanism is nested approach of efforts to reduce deforestation and forest degradation and to enhance ecosystem services which contribute to the livelihoods and environmental stability substantially. Such creative approach is new to Myanmar so that capacity building as well as awareness raising at all levels of relevant stakeholders including Forest Department Staff, local communities, decision makers, NGOs should be carried with momentum. All stakeholders are needed good capacity to formulate forest-based climate change mitigation and adaptation policy and action. Design and implementation REDD-plus project requires wide range of knowledge and active participation from all relevant stakeholders. More importantly, Myanmar has not yet prepared REDD-plus strategy, roadmap and demonstration site due to the lack of institutional capacity and limited capable human resources. Therefore, it is clear that the capacity building programme of utmost importance to implement for all relevant stakeholders in Myanmar.

In order to so, all related information about REDD-plus will be collected and disseminated to all the stakeholders so that awareness about REDD-plus will be raised among the stakeholders. Financial mechanism will also be created in cooperation with local NGOs, international organizations and all relevant stakeholders in order to support continuous implementation of REDD-plus activities. Through intensive consultations and meetings among stakeholders, national REDD-plus strategy will be formulated.

#### *Weak institutional setting for capacity building on REDD-plus*

Major drivers of deforestation and forest degradation have not been identified yet but mainly due to insufficient research activities and capable human resources. At present, there are only 8 Ph.D. degree holders and about 30 M.Sc degree holders out of 50,000 staffs in Ministry of Environmental Conservation and Forestry of Myanmar. As REDD-plus is emerging as a new mechanism, Researchers and Officials of Ministry of Forestry are limited in knowledge of REDD-plus. Accordingly, officials of line ministries, local communities and local authorities are also limited knowledge in REDD-plus as well as their role in sustainable forest management due to the limited extension activities.

There is lack of institutional setting, infrastructures and well-trained persons to build the capacity and raise awareness of various stakeholders. There is also very limited training programme, workshops and seminars regarding REDD-plus so that all level of stakeholders is lack of capacity to implement REDD-plus and related matters.

Forest Department of the MOECAF has formed a REDD-plus Core Unit to implement the REDD-plus related matters including preparing project proposals, conducting research, carrying out extension activities etc. There are about 20 members in Core Unit but there is no institutionalized structure. All core unit members are engaging with other responsibilities and they have no specific duty and assignment to deal with REDD-plus activities. The consequences of weak institutional setting caused lack of expertise in the respective field, insufficient experts in the respective field, low level of effectiveness, hard to address the emerging issues promptly and correctly. These collective effects contributed adversely to the development of REDD-plus national strategy as well as sustainable forest management. Therefore, strengthening institutional structure is of crucial important to deal with REDD+ issues. In order to do so, specific capacity building plan needs to be drawn to cover all round aspects of REDD+. With this project, through hand-on trainings and seminars, capacity of staff of

Ministry of Environmental Conservation and Forestry as well as stakeholders will be built. Stakeholders will also be mobilized and organized to participate the REDD-plus mechanism as an integral part of Institution.

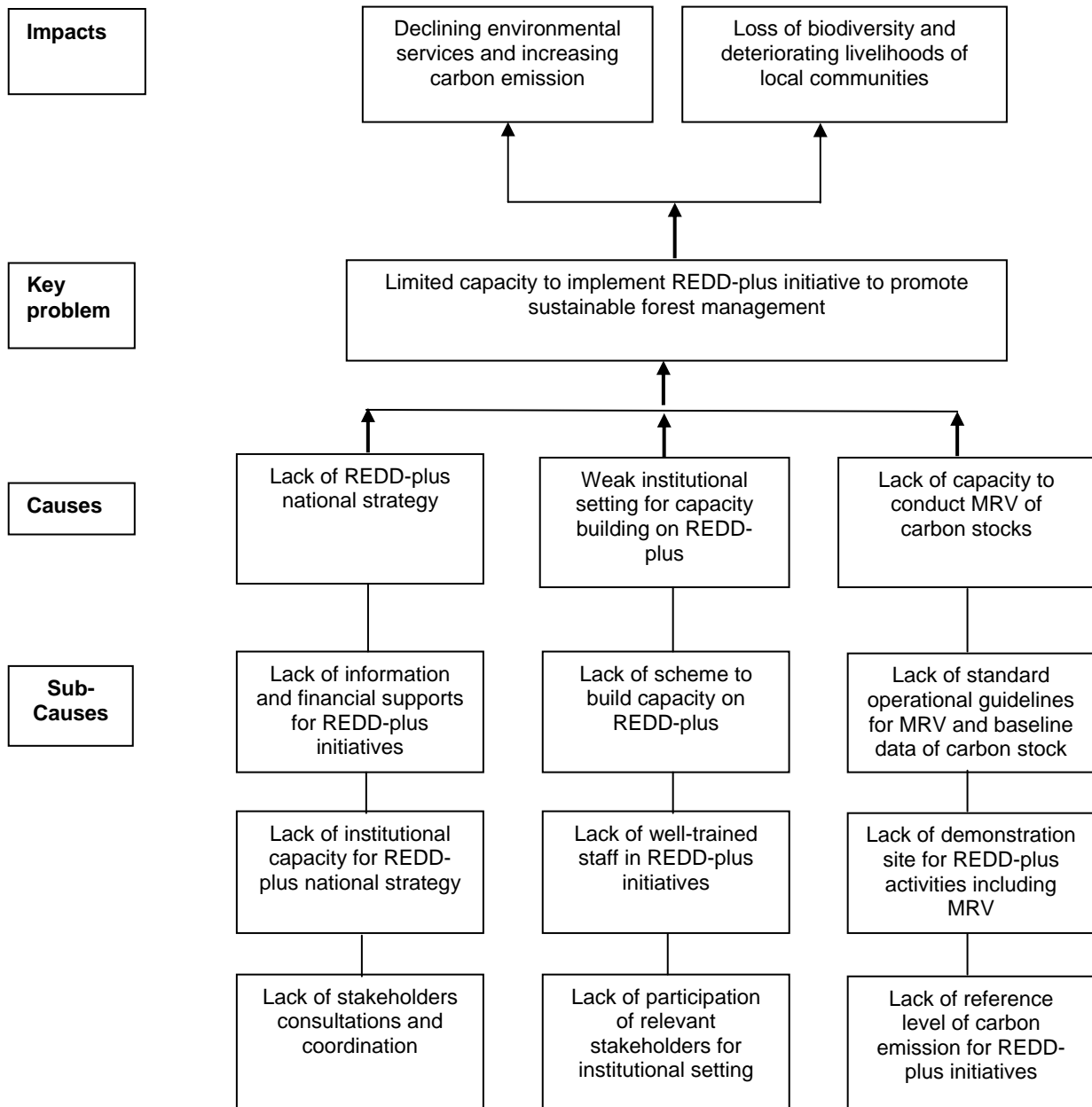
*Lack of capacity to conduct MRV of carbon stocks*

There is a huge area of pristine forested areas being converted for agriculture. Major causes are logging (both illegal and legal), firewood extraction, infrastructure development and agriculture expansion. According to the FRA (2010), average annual loss of forest cover in Myanmar amounted to 372,250 ha during 1990 to 2010. Due to the lack of specific deforestation data of Toungoo District, the annual loss of forest cover was not available for each specific site. However, Toungoo District was one of areas where the largest amount of timber was extracted in Myanmar as well as one of the densely populated area so that deforestation and forest degradation are unavoidable. Although Toungoo District is the experimental District for the preparation of National Forest Management Plan, sustainable forest management is still challenging due to insufficient inventory, lack of updated satellite images, limited trained persons and limited infrastructure.

Information sharing and extension activities could not be done because of lack of REDD-plus related project as well as other forest conservation and forest management related projects. This accelerates deforestation and forest degradation and consequently it causes negative impacts on livelihood of forest dependent local communities. The project site is lacking information and documents about financial worth of ecosystem services, capacity to monitor carbon stock and biodiversity and standard methodologies for local communities and Forest Department in monitoring REDD-plus readiness and developing a robust MRV system.

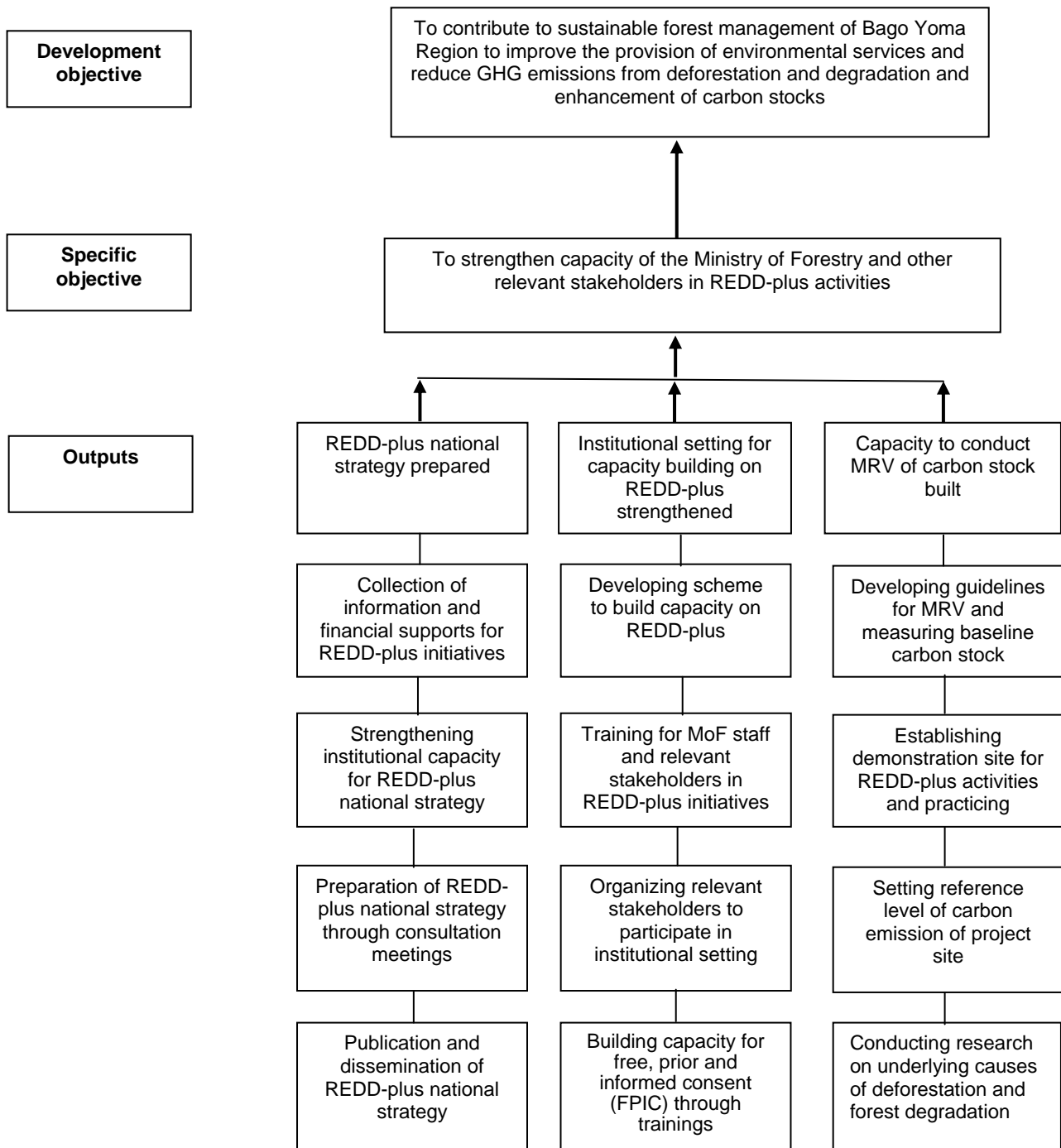
Implementation of REDD-plus requires high level precision and accuracy on measurement of carbon stock. In addition, there must be reliable Monitoring, Reporting and Verification (MRV) system for carbon stock. Thus it is necessary to prepare the standard operational guidelines for MRV and baseline data of carbon stock especially in line with IPCC Guidelines. Demonstration plot for REDD-plus has to be established to practice the activities for readiness of REDD-plus full project implementation. Software and hardware necessary for RS/GIS will be installed for MRV for the proper combination of ground data and satellite data to have realistic figure of carbon stock as well as to monitor forest cover changes. Then, reference scenario will be set based on forest cover changes.

**Figure 1. Problem Tree**





**Figure 2. Objective Tree**



## 2.1.4 Logical Framework Matrix

Project element	Indicators	Means of verification	Assumption
<p><b>Development objective</b></p> <p>To contribute to sustainable forest management of Bago Yoma Region to improve the provision of environmental services and reduce GHG emissions from deforestation and degradation and enhancement of carbon stocks.</p>	<ul style="list-style-type: none"> <li>i. Forest degradation in Bago Yoma Region would have been reduced by at least 20% in 2015</li> <li>ii. The proportion of degraded lands in Bago Yoma Region under restoration and management would have been increased by at least 50% in 2016</li> <li>iii. Forest carbon stocks in Bago Yoma Region would have been increased at least 20% in 2017</li> </ul>	<ul style="list-style-type: none"> <li>i. Completion report</li> <li>ii. Project progress report</li> </ul>	<p>All stakeholders are active to participate in REDD-plus initiatives.</p>
<p><b>Specific objective</b></p> <p>To strengthen capacity of the Ministry of Forestry in REDD-plus initiatives</p>	<ul style="list-style-type: none"> <li>i. Capacity of Forest Department staff and that of relevant stakeholders would have been built. By 2015, at least 120 people will participate in REDD-plus initiatives including MRV of carbon stock</li> <li>ii. By 2013, REDD+ national strategy would have been prepared and adapted.</li> <li>iii. By 2015, Forest Research Institute would have been strengthened with the purchase of satellite imageries and at least 5 professional staff will enhance their capacity in remote sensing.</li> <li>iv. By 2015, a MRV system including a national reference level would have been set.</li> </ul>	<ul style="list-style-type: none"> <li>i. Completion report on trainings and workshops</li> <li>ii. Publication of REDD-plus national strategy</li> <li>iii. List of capable human resources and facilities of REDD+ core unit.</li> <li>iv. List of satellite images and software</li> <li>v. Identification of reference emission level</li> </ul>	<p>All stakeholders are willing to participate in REDD-plus initiatives.</p> <p>Trainers and trainees available in time and resources available</p>
<p><b>Output 1.1</b></p> <p><b>REDD-plus national strategies prepared</b></p>	<ul style="list-style-type: none"> <li>i. All available information on REDD-plus initiatives</li> </ul>	<ul style="list-style-type: none"> <li>i. List of REDD-plus publications</li> <li>ii. List of reports</li> </ul>	<p>Community and related stakeholders</p>

	<ul style="list-style-type: none"> <li>ii. Extension activities through various media from First year</li> <li>iii. Building institutional capacity for preparing REDD-plus national strategy organized starting from First to third year</li> <li>iv. Stakeholders' consultations meetings held starting from First year</li> <li>v. REDD-plus national strategy formulated by third year</li> </ul>	<ul style="list-style-type: none"> <li>iii. Workshops and training completion reports</li> <li>iv. Publication of REDD-plus national strategy</li> </ul>	are willing to participate in REDD-plus initiatives.
<p><b>Output 1.2</b></p> <p>Institutional setting for capacity building on REDD-plus strengthened</p>	<ul style="list-style-type: none"> <li>i. Scheme and integrated plan prepared to build capacity on REDD-plus through consultation meetings among stakeholders by First year</li> <li>ii. Series of trainings (4 training courses), workshops (3 workshops) and seminars (3 seminars) to increase well-trained persons (120 people) in REDD-plus initiatives including MRV of carbon stock organized first, second and third year</li> <li>iii. Resources necessary for institutional setting to involve relevant stakeholders supported by Second year</li> <li>iv. FPIC practiced in the second and third year</li> </ul>	<ul style="list-style-type: none"> <li>i. Report on capacity building plan</li> <li>ii. Training and workshops completion reports and proceedings.</li> <li>iii. Report on supporting activities for institutional setting</li> <li>iv. Technical report on demonstration of REDD-plus activities</li> </ul>	<p>Community and related stakeholders are willing to participate in REDD-plus initiatives.</p> <p>All relevant stakeholders supportive and cooperative</p>
<p><b>Output 1.3</b></p> <p><b>Capacity to conduct MRV of carbon stock built</b></p>	<ul style="list-style-type: none"> <li>i. Forest cover assessment and forest resource inventory conducted by First year</li> <li>ii. Standard operational guidelines for MRV prepared by third year</li> <li>iii. Demonstration site for REDD+ activities</li> </ul>	<ul style="list-style-type: none"> <li>i. Publication of standard operational guidelines for MRV and forest inventory</li> <li>ii. Report on establishment of demonstration</li> </ul>	<p>Related institutions continue providing supports and participation.</p> <p>Project activities</p>

	iv. Technical trainings on MRV and resource inventory provided by second year v. Demonstration of REDD-plus activities practiced and applied by Third year	iii. Training completion report iv. Technical report on forest cover assessment	effectively and efficiently implemented and resources available
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## 2.2 Project Objectives

### 2.2.1 Development Objective and Impact Indicators

The development objective of this project is to contribute to sustainable forest management of Bago Yoma Region to improve the provision of environmental services and reduce GHG emissions from deforestation and degradation and enhancement of carbon stocks.

The ecosystem services of tropical forests include mitigation of climate-change impacts, conservation of biodiversity, protection of watersheds that supply forest-dwelling and urban communities with high-quality water, provision of amenity and recreation services, and production of biomass as an alternative source of energy for fossil fuels. These and other services, including disaster prevention such as flood control and protection against landslides and tsunamis, and the maintenance of the overall resilience of ecosystems may be achieved simultaneously through sustainable forest management (SFM). Since the Reserved forests and protected area system are well protected under the law and managed under with sustainable basis, deforestation of such areas would not be expected to be significant in Myanmar. As such, the main source of emissions will come from conversion of forests outside these areas and through degradation of production forests within the reserved forests mainly through commercial logging activities. Since, production forests constitute the bulk of the forest reserves in Myanmar (over 16.3 million ha), addressing forest degradation of production forests would thus contribute significantly to reducing emissions GHG in the forestry sector. As such, this aspect is the key area being addressed under this project.

Impact indicators are as follows:

- Forest degradation in Bago Yoma Region would have been reduced by at least 20% in 2015
- The proportion of degraded lands in Bago Yoma Region under restoration and management would have been increased by at least 50% in 2016
- Forest carbon stocks in Bago Yoma Region would have been increased at least 20% in 2017

### 2.2.2 Specific objective and outcome indicators

The specific objective of the project is to strengthen capacity of the Ministry of Forestry and other relevant stakeholders in REDD-plus activities.

The project will launch series of capacity building activities such as seminars, trainings and workshops. The project will also implement REDD+ pilot activities to learn the whole picture of REDD+, conduct survey on baseline carbon stock of project site. set the reference scenario of emission of the project site and establish coordination mechanism among relevant stakeholders. The project will identify the drivers of forest degradation through consultations with experts and key stakeholders. Ideas will also be sought from stakeholders of how best to address such drivers in the short and long-term periods. Addressing climate change issues would require a concerted effort at all levels and by everyone. In this regard, the project will endeavour to undertake programs to enhance the understanding and awareness in climate change issues particularly those related to forestry. Efforts will be made to assess forest degradation under the current forestry practices as well as develop improved protocols to achieve sustainable forest management and further reduce emissions and enhance ecosystem services.

Outcome indicators are as follows:

- Capacity of Forest Department staff and that of relevant stakeholders would have been built. By 2015, at least 120 people will participate in REDD-plus initiatives including MRV of carbon stock
- By 2013, REDD+ national strategy would have been prepared and adapted.
- By 2015, Forest Research Institute would have been strengthened with the purchase of satellite imageries and at least 5 professional staff will enhance their capacity in remote sensing.
- By 2015, a MRV system including a national reference level would have been set.

## PART III: DESCRIPTIONS OF PROJECT INTERVENTIONS

### 3.1 OUTPUTS AND ACTIVITIES

#### 3.1.1 Outputs

Specific objective

**To strengthen capacity of the Ministry of Forestry and other relevant stakeholders in REDD-plus activities**

Output 1.1 REDD-plus national strategies prepared

Output 1.2 Institutional setting for capacity building on REDD-plus strengthened

Output 1.3 Capacity to conduct MRV of carbon stock built

#### 3.1.2 Activities

##### **Output 1.1 REDD-plus national strategy prepared**

Activity 1.1.1	Collecting all available information on REDD-plus initiatives and implementing extension activities through media, publications, poster, pamphlet, cartoons, public educational talks
Activity 1.1.2	Building institutional capacity for REDD-plus national strategy through workshops, trainings, seminars, lessons learnt
Activity 1.1.3	Formulation of REDD-plus national strategy through organizing series of stakeholders' consultations meetings and establishing coordination mechanism
Activity 1.1.4	Publication and dissemination of REDD-plus national strategy

##### **Output 1.2 Institutional setting for capacity building on REDD-plus strengthened**

Activity 1.2.1	Preparation of scheme and integrated plan to build capacity on REDD-plus through consultation meetings among stakeholders
Activity 1.2.2	Strengthening coordination mechanism among relevant stakeholders
Activity 1.2.3	Organizing series of trainings, workshops and seminars as well as practice REDD-plus activities to increase well-trained persons in REDD-plus activities including MRV of carbon stock
Activity 1.2.4	Building capacity for free, prior and informed consent (FPIC) through trainings and practicing in the project site

##### **Output 1.3 Capacity to conduct MRV of carbon stock built**

Activity 1.3.1	Preparing standard operational guidelines for MRV of carbon stock and forest resource inventory in the project site
Activity 1.3.2	Establishing demonstration site and practicing REDD-plus activities
Activity 1.3.3	Conducting forest cover assessment, forest resource inventory and measuring carbon stocks for baseline data on carbon stocks of project site
Activity 1.3.4	Setting reference level of carbon emission of the project site

### 3.2 Implementation approaches and methods

In line with the objectives of the project, all activities are designed to build the institutional capacity of Forest Department as well as relevant stakeholders on REDD-plus initiatives through holding series trainings, workshops, seminars and awareness raising programme.

The inception workshop will be held to introduce the project and its objectives to all relevant stakeholders. The project mid-term review workshop will be held with a view to assessing the activities undertaken in the past two years and making the preparations as to implementation of the remaining activities of the project. The project concluding workshop will be held with a view to sharing the success achieved and lessons learnt during the project. Workshops and stakeholders consultation meetings will lay down the guidelines for project planning and implementation.

The proposed project will implement the most important aspects of REDD-plus initiatives including capacity building on measuring, reporting and verification (MRV) of carbon stocks, forest resource inventory and REDD-plus activities (reducing emissions from deforestation and degradation, sustainable forest management, forest conservation and enhancement of carbon stock i.e., reforestation and afforestation).

Project implementation basically includes holding meetings to discuss the matters relating to the project and conducting trainings to enhance the capacity among the stakeholders, project personnel and local communities, conducting extension activities to educate the local communities and to create awareness and demonstrating REDD-plus activities and livelihood improvement activities. Project activities will be implemented with the partnership and cooperation of all relevant stakeholders. Continuous monitoring and evaluation will be the crucial component of the project to monitor the implementation of the project activities whether they are being implemented to achieve the intended outputs and the overall objective. If required, the project implementation will be reviewed and revised through stakeholder consultation meetings. Basically, three actions will be involved in the project implementation and they are:

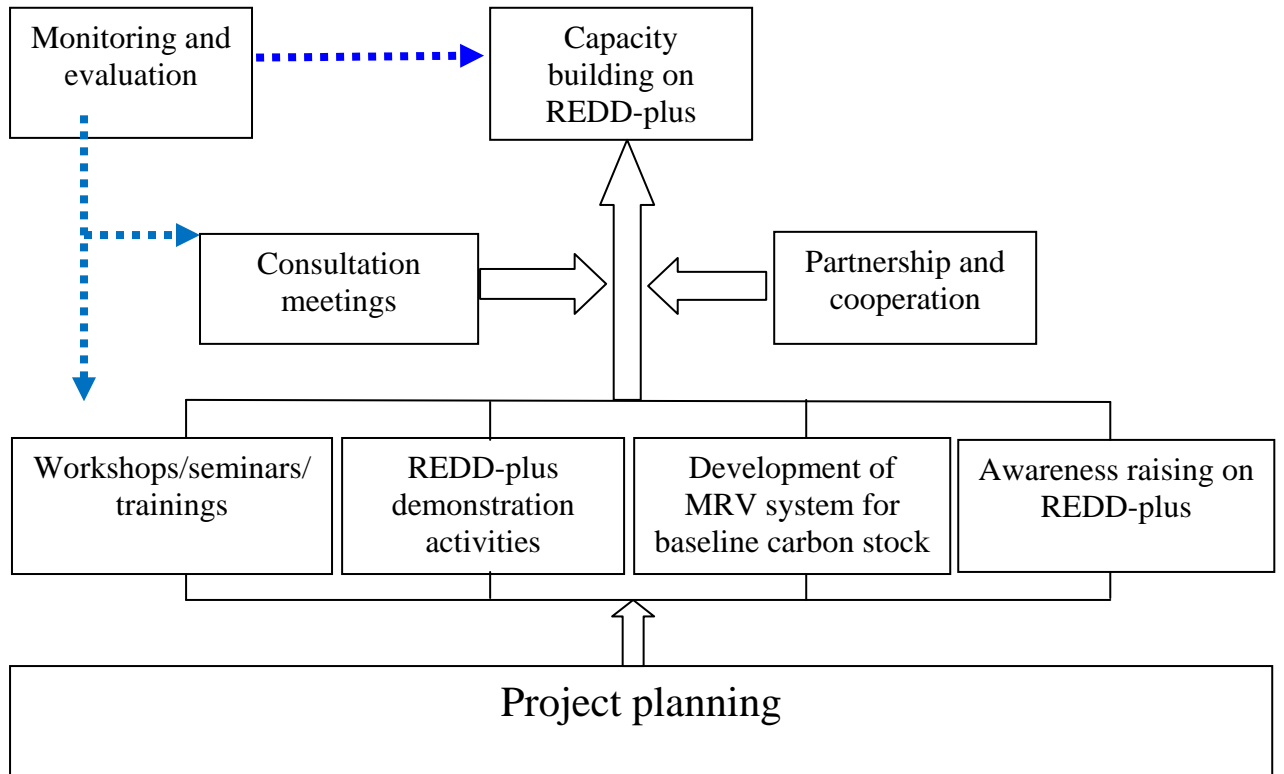
- (a) Consultative action (Hold the workshops/meetings)
- (b) Facilitative action (Conduct the trainings)
- (c) Educative action (Extension and demonstration activities)

In order to conduct forest inventory in the study site, Toungoo District, transect lines and plot will be laid down systematically. forest vegetation assessment will be conducted on systematically selected sample plots. Permanent sample plots will also be established in areas where dense forest vegetation cover for monitoring vegetation dynamic and changes of carbon stock. Based on the inventory data, base line carbon stock will be calculated. Similarly, present forest cover will be assessed by satellite images. Using previous forest cover satellite images, deforestation rate as well as reference emission level of carbon will be calculated and finally, reference emission level will be identified. In order to practice carbon stock enhancement, reforestation activities will be carried out in line with UN-REDD program. Throughout the project period, forest based-income generation activities for the local people will be implemented.

Multi-stakeholder participation at all levels will be encouraged. NOGs will be vital part of the implementation approach to share experiences in local community development and capacity building in forest-based climate change mitigation action. Academic and researchers will be involved with providing with some capacity building training workshops. Several training courses are focused to increase the capacity of partners in enhancing their knowledge on the role of forests in climate change and opportunities and challenges in REDD-plus.

Basic flow of project implementation approaches and methods is illustrated as follows:

Flow chart for key steps in the implementation of the project





### 3.3 Workplan

Output and Activities		Year 1				Year 2				Year 3			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>Output 1.1 REDD-plus national strategies prepared</b>													
1.1.1	Collecting all available information on REDD-plus initiatives and implementing extension activities through media, publications, poster, pamphlet, cartoons, public educational talks												
1.1.2	Building institutional capacity for REDD-plus national strategy through workshops, trainings, seminars, lessons learnt												
1.1.3	Formulization of REDD-plus national strategy through organizing stakeholders' consultations meetings and establishing coordination mechanism												
1.1.4	Publication and dissemination of REDD-plus national strategy												
<b>Output 1.2 Institutional setting for capacity building on REDD-plus strengthened</b>													
1.2.1	Preparation of scheme and integrated plan to build capacity on REDD-plus through consultation meetings among stakeholders												
1.2.2	Organizing series of trainings, workshops and seminars as well as practice REDD-plus activities to increase well-trained persons in REDD-plus initiatives including MRV of carbon stock												
1.2.3	Strengthening institution for capacity building on REDD-plus readiness												
1.2.4	Building capacity for free, prior and informed consent (FPIC) through trainings and practicing in the project site												
<b>Output 1.3 Capacity to conduct MRV of carbon stock built</b>													
1.3.1	Conducting forest cover assessment, forest resource inventory and measuring carbon stocks for baseline data on carbon stocks of project site												
1.3.2	Develop appropriate research methodology to identify reference level of carbon emissions through application of IPCC												
1.3.3	Establishing MRV system for monitoring carbon stock for reference level through instillation of necessary infrastructure and software												
1.3.4	Conducting research on underlying causes of deforestation and forest degradation over the REDD-plus demonstration site												
1.4.5	Preparing standard operational guidelines for MRV of carbon stock and forest resource inventory in the project site												
1.4.6	Establishing demonstration site and permanent sample plots for MRV of carbon												

	stocks and forest resource inventory												
1.4.7	Setting infrastructure to conduct MRV of carbon stocks through supporting based on needs assessment												
1.4.8	Undertaking REDD-plus activities in the demonstration site to address the underlying causes of deforestation and forest degradation												

### 3.4 Budget

#### 3.4.1 Master Budget Schedule

Outputs/ Activities	Description	Budget component	Quantity			Unit	Unit cost US\$	Total cost US\$	ITTO			GoM
			Year 1	Year 2	Year 3				Year 1	Year 2	Year 3	
1.1	<b>REDD-plus national strategy prepared</b>											
1.1.1	<b>Collecting information and extension</b>											
	Purchasing books, journals	54	20	10	20	no	50	2,500	1,000	500	1000	
	Translating	12.1				lump sum		5,000	5,000	0	0	
	Public education talk	12.2	2	2	4	event/year	1000	8,000	2,000	2,000	4000	
	Poster/vinyl/pamphlet	54		200	200	no	10	4,000		2,000	2000	
	Media	12.2	2	2	4	no	200	1,600	2,000	2,000	4000	
	Foresters	11.2	1	0	0		500	500	500	0	0	
	Socio-economists	11.3	1	0	0		500	500	500	0	0	
	Local travel	30	2	2	4	event/year	200	1,600	400	400	800	
	DSA	31	50	25	25	person	15	1,500	750	375	375	
	Fuel	33.3	50	50	100	gallon	5	1,000	250	250	500	
	National consultant (extension)	13	3	3	3	month	1200	10,800	3600	3600	3600	
1.1.2	<b>Building institutional capacity</b>											0
	Organizing training	15	1	0	0	event	4,000	4,000	4,000	0	0	
	Organizing workshop	15	1	0	0	event	4,000			0	0	

								4,000	4,000			
	Local travel	30	2	2	4	event/year	200	1,600	400	400	800	
	DSA	31	25	25	50	person	15	1,500	375	375	750	
	Fuel	53	50	50	100	gallon	5	1,000	250	250	500	
	Foresters	11.2	1	0	0		500	500	500	0	0	
	Extensionist	11.3	1	1	1		500	1,500	500	500	500	
	GIS technicians	11.4	1	0	0		500	500	500	0	0	
	REDD-expert	13.1	1	1	1		500	1,500	500	500	500	
<b>1.1.3</b>	<b>Preparing REDD-plus national strategy</b>										0	
	Reviewing all available information	<b>11.4</b>	0	5	0	person	100	500	0	500	0	
	Consultation meetings	61	0	1	2	event	300	900		300	600	
	Foresters	11.2	0	0	1		500	500	0	0	500	
	REDD-expert	11.3	0	1	1		500	1,000	500	500	0	
	National workshop on REDD-plus strategy	61	0	0	1	event	4,000	4,000	0	0	4000	
	Preparation of REDD-plus national strategy	61	0	0	1	no	2,000	2,000	0	0	2000	
	International consultant (National Strategy)	11.2	0	0	3	month	6,000	18,000	0	0	18,000	-2000
	National consultant (national strategy)	13.1	0	0	3	month	1,200	3,600	0	0	3,600	+3,600
	Fuel	53	50	50	100	gallon	5	1,000	250	250	500	
<b>1.1.4</b>	<b>Publication of REDD-plus national strategy</b>										0	
	Publication and dissemination	54	0	0	300	no	10	-	0	0	3000	
<b>1.2</b>	<b>Institutional setting for</b>										0	

	<b>REDD-plus strengthened</b>											
1.2.1	<b>Preparation of scheme and integrated plan</b>	61										0
	Consultation meetings	61	1	2	0	event	300	900	300	600		0
	Preparation of scheme and integrated plan	54	0	1	0	no	500	500	0	500		0
	Publication of integrated plan for capacity building	54			300	no	10	3,000	0	0		300
	Fuel	53	50	50	100	gallon	5	1,000	2,500	2,500		5000
	Foresters	11.2	1	0	0		500	500	500	0		0
	Extensionist	12.2	1	1	1		500	1,500	500	500		500
1.2.2	<b>Strengthening coordination mechanism</b>											0
	Organizing consultation meetings	61	2	2	4	event/year	300	2,400	600	600		1200
	Local travel	33	2	2	4	event/year	200	1,600	400	400		800
	DSA	31	25	25	50	person	15	1,500	375	375		750
	Fuel	53	25	25	50	gallon	5	500	125	125		250
	Foresters	11.2	1	0	0		500	500	500	0		0
	Extensionist	11.3	1	1	1		500	1,500	500	500		500
1.2.3	<b>Organizing trainings, workshops and seminars</b>											0
	Trainings (REDD-plus activities)	61	1	1	4	event/year	4,000	24,000	4,000	4,000		16000
	Workshop	61		1	2	event/year	4,000	12,000	0	4,000		8000
	Workshop proceedings	61		1	2	no per event	1,000	3,000	0	1,000		2000

	Seminars	61	1	1	2	event/year	500	2,000	500	500	1000	
	Training materials	53				lumpsum		1,000	1,000	0	0	
	Fuel	53	50	50	100	gallon	5	1,000	250	250	500	
	Foresters	11.2	1				500	500	500	0	0	
	Extensionist	11.3	1	1	1		500	1,500	500	500	500	
	GIS technicians	12	1	1	1		500	1,500	500	500	500	
	REDD-expert	11.3	1	1	1		500	1,500	500	500	500	
	International travel	32	1	1	2	person/event	2,000	8,000	2,000	2,000	4000	
	Local travel	33	2	2	4	event/year	200	1,600	400	400	800	
	DSA	31	25	25	50	person	15	1,500	375	375	750	
<b>1.2.4</b>	<b>Building capacity for FPIC</b>										0	
	Trainings (REDD-plus activities)	61	1	1	0	event/year	4,000	8,000	4,000	4,000	0	
	Organizing local community for FPIC	61	4	4	0	event/year	200	1,600	800	800	0	
	Local travel	33	4	4	0	event/year	200	1,600	800	800	0	
	DSA	31	50	50	0	person	15	1,500	750	750	0	
	Fuel	53	50	50	0	gallon	5	500	250	250	0	
	Foresters	11.2	1	1	1		500	1,500	500	500	500	+500
	Extensionist	11.3	1	1	1		500	1,500	500	500	500	+500
<b>1.3</b>	<b>Capacity to conduct MRV of carbon stock built</b>										0	
1.3.1	<b>Developing appropriate</b>										0	

	<b>research methodology</b>											
	Brain storming and Reviewing IPCC guidelines	61	1	1		event/year	300	600	300	300	0	
	Purchasing reference books	51	1			lump sum	500	500	500	-	0	
	Consultation meetings	61	1	1		event/year	500	1,000	500	500	0	
	Developing appropriate methodology/field guidelines	53			1	lump sum	1,000	1,000	0	0	1000	
	Fuel	53	50	50	100	gallon	5	1,000	250	250	500	
	Local travel	33	2	2	4	event/year	200	1,600	400	400	800	
	DSA	31	25	25	50	person	15	1,500	375	375	750	
	Foresters	11.2			2		500	1,000	0	0	1000	
	GIS technicians	11.3			2		500	1,000	0	0	1000	
	REDD-expert	11.3			1		500	1,000	0	0	1000	
<b>1.3.2</b>	<b>Conducting forest cover assessment and measuring carbon stocks for baseline data</b>										0	
	Forest inventory/carbon measurement	14.1	1		1	event/year	2,000	2,000	2,000	0	2000	
	Publication and dissemination report	61			1	per event	1,000	1,000	0	0	1000	
	Labor cost for inventory	12.2	20		20	persons/event	100	4,000	2,000	0	2000	
	International consultant (Carbon assessment)	13		3		months	6,000	18,000	0	18,000	0	-2000
	Foresters	11.2	1	1	1		500	1,500	500	500	500	
	GIS technicians	11.3	1	1	1		500	1,500	500	500	500	
	Fuel	53	100	100	200	gallon	5				1000	

								2,000	500	500		
	Local travel	31	2	2	4	event/year	200	1,600	400	400	800	
	DSA	31	50	25	25	persons	15	1,500	750	375	375	
<b>1.3.3</b>	<b>Identification of reference level of emissions</b>										0	
	Consultation meetings for reference level	61	1	1	2	event/year	300	1,200	300	300	600	
	Identification of reference level of emissions	44				lump sum	1,000	1,000	1,000	0	0	
	International consultant (RS/GIS for MRV)	14		2		months	6,000	12,000	0	12,000	0	-8000
	Local travel	33	2	2	4	event/year	200	1,600	400	400	800	
	DSA	31		25	75	person	15	1,500	0	375	1125	
<b>1.3.4</b>	<b>Research on underlying causes of deforestation</b>										0	
	Local travel	33	4	4	0	event/year	200	1,600	800	800	0	
	DSA	31	50	50	0	person	15	1,500	750	750	0	
	Fuel	33	50	50	100	gallon	5	1,000	250	250	500	
	Foresters	11.3	2	2	0		500	2,000	1,000	1,000	0	+1000
	Preparation of technical report	61			2	person	500	1,000	0	0	1000	
	National consultant	13.1	2	0	0	person	1200	2400	2400	0	0	+1200
<b>1.3.5</b>	<b>Capacity to conduct MRV of carbon stock built</b>										0	
<b>1.3.6</b>	<b>Preparing standard operational guidelines for MRV</b>										0	
	Workshop on development of guidelines	61	1			event	4,000	4,000	4,000	0	0	



	for MRV											
	Preparing standard operation guidelines for MRV	61			1	sump sum	1,000	1,000	0	0	1000	
	Publication of standard operational guidelines for MRV	40			200	no	10	2,000	0	0	2000	
	Training on MRV of carbon stock	61		1		event	2,500	2,500	0	2,500	0	
	Local travel	33	2	2	4	event/year	200	1,600	400	400	800	
	DSA	31	25	25	50	person	15	1,500	375	375	750	
	National consultant (MRV)	13		3		person	1,200	3,600	0	3,600	0	
	Foresters	11.2		1	1		500	1,000	0	500	500	
	GIS technicians	11.3		1	1		500	1,000	0	500	500	
	REDD-expert	11.3		1	1		500	1,000	0	500	500	
	Consumable items	50				lump sum	500	500	500	0	0	
1.3.7	<b>Establishing permanent sample plots</b>										0	
	Labor cost for establishing permanent sample plots	12.2	25	25	0	no	100	5,000	2,500	2,500	0	
	Fuel	53	50	50	100	gallon	5	1,000	250	250	500	
	Local travel	33	10	10	20	event/year	200	8,000	2,000	2,000	4000	
	DSA	31	50	25	25	person	15	1,500	750	375	376	
	Foresters	11.2	0	1	1		500	1,000	0	500	500	
	REDD-expert	11.3	0	1	1		500	1,000	0	500	500	
1.3.8	<b>Setting infrastructure to conduct MRV of carbon stocks</b>								0		0	

	Mobilizing software and hardware facilities including satellite images for MRV	44	1			set	25,000	25,000	25,000	0	0	
	Training courses on forest resource inventory	61	1	1	0	person	4,000	8,000	4,000	4,000	0	
	Establishing permanent sample plots	12.2	20	20	0	person	20	800	400	400	0	
	Conducting forest resource inventory and measure carbon stocks	12.2	100	100	0	person	20	4,000	2,000	2,000	0	
	Fuel	53	50	50	100	gallon	5	1,000	250	250	500	
	Local travel	33	2	2	4	event/year	200	1,600	400	400	800	
	DSA	31	25	25	50	person	15	1,500	375	375	750	
	Foresters	11.2	1	0	0	0	500	500	500	0	0	
	GIS technicians	11.3	1	0	0	0	500	500	500	0	0	
	Consumable items	50				lump sum	500	500	500	0	0	
<b>1.4.4</b>	<b>Undertaking REDD-plus activities</b>											0
	Labor cost for site selection for REDD demonstration and PSP	12.2	10	0	0	person	100	1,000	1,000	0	0	
	Labor cost for establishing demonstration site for REDD	12.2	50	0	0	person	100	5,000	5,000	0	0	
	Fuel	53	50	50	100	gallon	5	1,000	250	250	500	
	Local travel	33	10	10	20	event/year	200	8,000	2,000	2,000	4000	
	DSA	31	50	25	25	person	15	1,500	750	375	375	
	Foresters	11.2	1	1	1		500	1,500	500	500	500	+2000
	REDD-expert	11.3		1	1		500		0		500	

								1,000		500		
	<b>Non-activity based expenses</b>										0	
	National Project Coordinator	11.1	12	12	12	person-month	700	25200	8400	8400	8400	-8400
	Administrative staff (3 staff per year)	11.4	12	12	12	persons-month	200	0	0	0	0	21600
	Driver	12.2	12	12	12	persons-month	100	3,600	1,200	1,200	1,200	-1200
	Project secretary	11.4	12	12	12	persons-month	200	7,200	2,400	2,400	2,400	-2400
	4WD pick up	43	1				30,000	30,000	30,000	0	0	
	Premises	41	1	1	2	Per year	500	2,000	500	500	1000	
	Office	50	1	1	1	Per year	300	0	0	0	0	1200
	Office supplies (papers, cartridges, toner, etc.)	54	1	1	2	Per year	2,500	10,000	2,500	2,500	5000	
	Copier	54	1	0	0	no	2,000	2,000	0	0	0	+2000
	Computer and accessories (1 laptop+4 desktops, printer, scanner)	54	1	0	0	Lump sum	5,000	5,000	5,000	0	0	
	Digital video camera	44	1	0	0	no	2,000	2,000	2,000	0	0	
	LCD Projector	44	1	0	0	no	2,000	2,000	2,000	0	0	+2000
	Clinometers	44.2	2	0	0	no	600	1,200	2,400	0	0	
	Hypsometer	44.2	2	0	0	no	1,500	3,000	3,000	0	0	
	Clipper	44.2	4	0	0	pairs	400	1,600	1,600	0	0	
	Diameter tapes	44.2	5	0	0	piece	300	1,500	1,500	0	0	
	Weighting scales	44.2	2	0	0	set	500	1,000	1,000	0	0	
	Sundry	61	1	1	2	Lump sum-year	1,000	4,000	1,000	1,000	2000	
	Media, publication and education	53	1	1	2	per year	500	2,000	500	500	1000	

	Auditing	62	1	1	1	per year	1,500	4,500	1,500	1,500	1500	
	Steering committee meeting	61	1	1	1	event/year	1,000	3,000	1,000	1,000	1000	
	<b>Total</b>							<b>472,701</b>				

### 3.4.2 Consolidated budget by component (in U.S. Dollar)

Budget component		TOTAL	YEAR 1	YEAR 2	YEAR 3
<b>10</b>	<b>Project personnel</b>				
	11 Project Coordinator	25,200	8,400	8,400	8,400
	12 National consultant	20,400	6,000	7,200	7,200
	13 International consultant	48000	-	30000	18000
	14 Technicians	36,500	13,000	11,500	12,000
	15 Administrative staff	21,600	7,200	7,200	7,200
	16 Project secretary	7,200	2,400	2,400	2,400
	17 Labor wages	36,800	23,300	11,500	2,000
	17.1 Driver	3,600	1,200	1,200	1,200
	18 Honorarium (reviewing literature, preparation guideline, integrated planning, reference level)	10,600	300	6,300	4,000
	<b>19 Component Total</b>	<b>209,900</b>			
20	Sub-contracts				
	21 Consultation meeting	3,300	300	1,200	1,800
	22 Workshops	24,000	8,000	4,000	12,000
	23 Trainings	44,000	16,000	12,000	16,000
	24 Seminars	2,000	500	500	1,000
	<b>29 Component Total</b>	<b>73,300</b>			0
30	Travel				0
	31 International travel	20,000	5,000	5,000	10,000
	32 Local travel	32,000	8,800	8,800	14,400
	33 Daily Subsistence Allowance (DSA)	19,228	6,750	5,625	6,853
	<b>39 Component Total</b>	<b>71,228</b>			0
40	Capital Items				0
	41 Computer and accessories (1 laptop+4 desktops, printer, scanner, copier)	5,000	5,000	0	0
	42 Digital video camera	2,000	2,000	0	0
	43 LCD projector	2,000	2,000	0	0
	44 software and hardware facilities including satellite images for MRV	25,000	25,000	0	0
	45 Copier			0	0

		2,000	2,000		
	46 Forestry equipment			0	0
	46.1 Clinometers and hypsometer	4,200	4,200	0	0
	46.2 Clipper	1,600	1,600	0	0
	46.3 Diameter tapes	1,500	1,500	0	0
	46.4 Weighting scales	1,000	1,000	0	0
	46.5 Premises	2,000	500	500	1,000
	47 Office	900	300	300	300
	48 Vehicle	30,000	30,000	0	0
	<b>49 Component Total</b>	<b>77,200</b>			0
50	Consumable items				0
	51 Fuel	31,000	<b>7875</b>	<b>7875</b>	15,250
	52 Office supplies (stationary, cartridges, paper, ink etc.)	10,000	2,500	2,500	5,000
	53 Publication	11,000			11,000
	54 Media	1,600	400	400	800
	55 Poster, vinyl, pamphlet, wall sheet etc.	4,000		2,000	2,000
	56 Public education talk	8,000	2,000	2,000	4,000
	57 Purchasing books, journals	3,000	1,500	500	1,000
	<b>59 Component Total</b>	<b>68,600</b>			0
60	Miscellaneous				0
	61 Sundry	8,300	2,075	2,075	4,150
	63 Auditing	4,500	1,500	1,500	1,500
	<b>69 Component Total</b>	<b>12,800</b>			0
	<b>SUB-TOTAL 1</b>	<b>513,028</b>	<b>200,100</b>	<b>142,475</b>	<b>170,453</b>
					0
<b>70</b>	<b>National management cost</b>				0
	71 Executing Agency Management Cost (10% of total budget by activity)	51,302	0	0	0
	<b>79 Component Total</b>	<b>51,302</b>	<b>0</b>	<b>0</b>	0
80	Project Monitoring and Administration				0
	81 ITTO Monitoring and Review	24,000	0	0	0
	82 ITTO Midterm, final, ex-post Evaluation Cost	15,000	0	0	0
	<b>SUBTOTAL 2</b>				0

		<b>603,330</b>			
	83 ITTO Programme Support Costs (8%)	42,362	0	0	0
<b>100</b>	<b>GRAND TOTAL</b>	<b>645,692</b>			0

### 3.4.3 ITTO budget by component (in U.S. Dollar)

Budget component		TOTAL	YEAR 1	YEAR 2	YEAR 3
<b>10</b>	<b>Project personnel</b>				
	11 Project Coordinator	25,200	8,400	8,400	8,400
	12 National consultant	20,400	6,000	7,200	7,200
	13 International consultant	48000	0	30000	18000
	14 Technicians	36,500	13,000	11,500	12,000
	15 Administrative staff	0	0	0	0
	16 Project secretary	7,200	2,400	2,400	2,400
	17 Labor wages	36,800	23,300	11,500	2,000
	17.1 Driver	3,600	1,200	1,200	1,200
	18 Honorarium (reviewing literature, preparation guideline, integrated planning, reference level)	10,600	300	6,300	4,000
	<b>19 Component Total</b>	<b>188,300</b>			
20	Sub-contracts				
	21 Consultation meeting	3,300	300	1,200	1,800
	22 Workshops	24,000	8,000	4,000	12,000
	23 Trainings	44,000	16,000	12,000	16,000
	24 Seminars	2,000	500	500	1,000
	<b>29 Component Total</b>	<b>73,300</b>			
30	Travel				
	31 International travel	20,000	5,000	5,000	10,000
	32 Local travel	32,000	8,800	8,800	14,400
	33 Daily Subsistence Allowance (DSA)	19,228	6,750	5,625	6,853
	<b>39 Component Total</b>	<b>71,228</b>			
40	Capital Items				
	41 Computer and accessories (1 laptop+4 desktops, printer, scanner, copier)	5,000	5,000	0	0
	42 Digital video camera	2,000	2,000	0	0
	43 LCD projector	2,000	2,000	0	0
	44 software and hardware facilities including satellite images for MRV	25,000	25,000	0	0
	45 Copier			0	0



		2,000	2,000		
	46 Forestry equipment			0	0
	46.1 Clinometers and hypsometer	4,200	4,200	0	0
	46.2 Clipper	1,600	1,600	0	0
	46.3 Diameter tapes	1,500	1,500	0	0
	46.4 Weighting scales	1,000	1,000	0	0
	46.5 Premises	2,000	500	500	1,000
	47 Office	0	0	0	0
	48 Vehicle	30,000	30,000	0	0
	<b>49 Component Total</b>	<b>76,300</b>			0
50	Consumable items				0
	51 Fuel	31,000	<b>7875</b>	<b>7875</b>	15,250
	52 Office supplies (stationary, cartridges, paper, ink etc.)	10,000	2,500	2,500	5,000
	53 Publication	11,000			11,000
	54 Media	1,600	400	400	800
	55 Poster, vinyl, pamphlet, wall sheet etc.	4,000		2,000	2,000
	56 Public education talk	8,000	2,000	2,000	4,000
	57 Purchasing books, journals	3,000	1,500	500	1,000
	<b>59 Component Total</b>	<b>68,600</b>			0
60	Miscellaneous				0
	61 Sundry	8,300	2,075	2,075	4,150
	63 Auditing	4,500	1,500	1,500	1,500
	<b>69 Component Total</b>	<b>12,800</b>			0
	<b>SUB-TOTAL 1</b>	<b>490,528</b>	<b>192,600</b>	<b>134,975</b>	<b>162,953</b>
					0
<b>70</b>	<b>National management cost</b>				0
	71 Executing Agency Management Cost (10% of total budget by activity)	0	0	0	0
	<b>79 Component Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	0
80	Project Monitoring and Administration				0
	81 ITTO Monitoring and Review	24,000	0	0	0
	82 ITTO Midterm, final, ex-post Evaluation Cost	15,000	0	0	0
	<b>SUBTOTAL 2</b>	<b>529,528</b>			0

	83 ITTO Programme Support Costs (8%)	<b>42,362</b>	0	0	0
<b>100</b>	<b>GRAND TOTAL</b>	<b>571,890</b>			

### 3.4.4 Executing agency budget by component (in U.S. Dollars)

Budget component		TOTAL	YEAR 1	YEAR 2	YEAR 3
<b>10</b>	<b>Project personnel</b>				
	11 Project Coordinator				
	12 National consultant	0	0	0	0
	13 International consultant	0	0	0	0
	14 Technicians	0	0	0	0
	15 Administrative staff	21,600	7,200	7,200	7,200
	16 Project secretary	0	0	0	0
	17 Labor wages	0	0	0	0
	17.1 Driver	0	0	0	0
	18 Honorarium (reviewing literature, preparation guideline, integrated planning, reference level)				
	<b>19 Component Total</b>	<b>21,600</b>	<b>0</b>	<b>0</b>	<b>0</b>
20	Sub-contracts				
	21 Consultation meeting	0	0	0	0
	22 Workshops	0	0	0	0
	23 Trainings	0	0	0	0
	24 Seminars	0	0	0	0
	<b>29 Component Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
30	Travel				
	31 International travel	0	0	0	0
	32 Local travel	0	0	0	0
	33 Daily Subsistence Allowance (DSA)	0	0	0	0
	<b>39 Component Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
40	Capital Items	0	0	0	0
	41 Computer and accessories (1 laptop+4 desktops, printer, scanner, copier)	0	0	0	0
	42 Digital video camera	0	0	0	0
	43 LCD projector	0	0	0	0
	44 software and hardware facilities including satellite images for MRV	0	0	0	0
	45 Copier	0	0	0	0
	46 Forestry equipment	0	0	0	0
	46.1 Clinometers and hypsometer	0	0	0	0
	46.2 Clipper	0	0	0	0
	46.3 Diameter tapes	0	0	0	0
	46.4 Weighting scales	0	0	0	0
	46.5 Premises	0	0	0	0
	47 Office	900	300	300	300
	48 Vehicle	0	0	0	0
	<b>49 Component Total</b>	<b>900</b>			
50	Consumable items	0	0	0	0
	51 Fuel	0	0	0	0
	52 Office supplies (stationary, cartridges, paper, ink etc.)	0	0	0	0
	53 Publication	0	0	0	0
	54 Media	0	0	0	0
	55 Poster, vinyl, pamphlet, wall sheet etc.	0	0	0	0
	56 Public education talk	0	0	0	0
	57 Purchasing books, journals	0	0	0	0

	<b>59 Component Total</b>	0	0	0	0
60	Miscellaneous	0	0	0	0
	61 Sundry	0	0	0	0
	63 Auditing	0	0	0	0
	<b>69 Component Total</b>	0	0	0	0
	<b>SUB-TOTAL 1</b>	0	0	0	0
		0	0	0	0
<b>70</b>	<b>National management cost</b>				
	71 Executing Agency Management Cost (10% of total budget by activity)	51,302	0	0	0
	<b>79 Component Total</b>	<b>51,302</b>	<b>0</b>	<b>0</b>	<b>0</b>
80	Project Monitoring and Administration				
	81 ITTO Monitoring and Review	0	0	0	0
	82 ITTO Midterm, final, ex-post Evaluation Cost	0	0	0	0
	<b>SUBTOTAL 2</b>	0	0	0	0
	83 ITTO Programme Support Costs (8%)	0	0	0	0
<b>100</b>	<b>GRAND TOTAL</b>	<b>73,802</b>			

## **3.5 ASSUMPTIONS, RISKS AND SUSTAINABILITY**

### **3.5.1 Assumptions and risks**

The success of the project will be dependent on a number of assumptions. Among them are:

- ❖ That all relevant stakeholders including local communities, Forest Department staff, decision makers will come to aware the important role of REDD-plus initiatives and thus see the need to implement sustainably;
- ❖ That the relevant stakeholders and decision makers will be supportive to the implementation of project activities and local authorities will provide legal backing to resources tenure and right for subsistence livelihoods.
- ❖ All relevant stakeholders will show interest in the project and become cooperative in the implementation of the project activities;

The potential risk may emerge from the conflict of interest between key stakeholders who has authority in managing forest area and implementing REDD-plus activities. In contrast, there also might be conflicts between interest and non-interest persons, project participants and non-participant. There also might be local elite groups and participants as well as stakeholders. The process of institutional set up and the formulation of national strategy of REDD-plus need deliberate precaution measures against to those risks.

Natural disasters such as storm, flood, forest fire etc. might also be potential risks of the project. These assumptions pose risks to the success of the project. If any of the assumptions fail, it will present setbacks to achievement of project objectives. In order to curtail any such occurrence, efforts will be made to obtain the commitment of the local communities, the local authorities, and other relevant stakeholders of the project. To meet this end, since the beginning of the project, extension activities, consultation meetings, FPIC process need to be designed well to let all stakeholders have much room to take part actively in it. In particular, there shall be adequate understanding of the real values and role of REDD-plus activities to mitigate climate change. Thus, a desire to initiate REDD-plus will be internally generated by the communities themselves rather than externally motivated. Once this is achieved, the identified risks will be reasonably held in check. The active participation of all stakeholders during the national workshops an assurance that the risks are manageable.

### **3.5.2 Sustainability**

The project will mainly use the existing assets owned by respective institutions. To strengthen capacity of Forest Department staff, required facilities including computer hardware, GIS software, computer accessories including satellite images, forest survey equipments, etc. will be procured using project funds. The assets organized by the project will become the property of the Government of Myanmar (Ministry of Forestry). The professionals trained for the MRV system will become the staff members of the Planning and Statistics Division of the Forest Department which is responsible for forest resource planning and monitoring of forest resources in Myanmar.

Sustainability of the project can be expected from the continued budget and policy support. After project completion, institutional capacity on REDD-plus will be built and continuously strengthen using the facilities including permanent sample plots and REDD-plus demonstration sites created by the project which will be upgraded as necessary.

The FD will provide necessary technical and material support to the local communities in the project areas to be able to maintain and use best livelihood practices. The FD will take measures to disseminate the best practices to the communities outside the project areas to enhance local economy. In this regard, active cooperation of local authorities and other relevant stakeholders will be of paramount importance.

## **PART IV IMPLEMENTATION ARRANGEMENTS**

### **4.1 Management structure**

#### **4.1.1 Executing agency and partners**

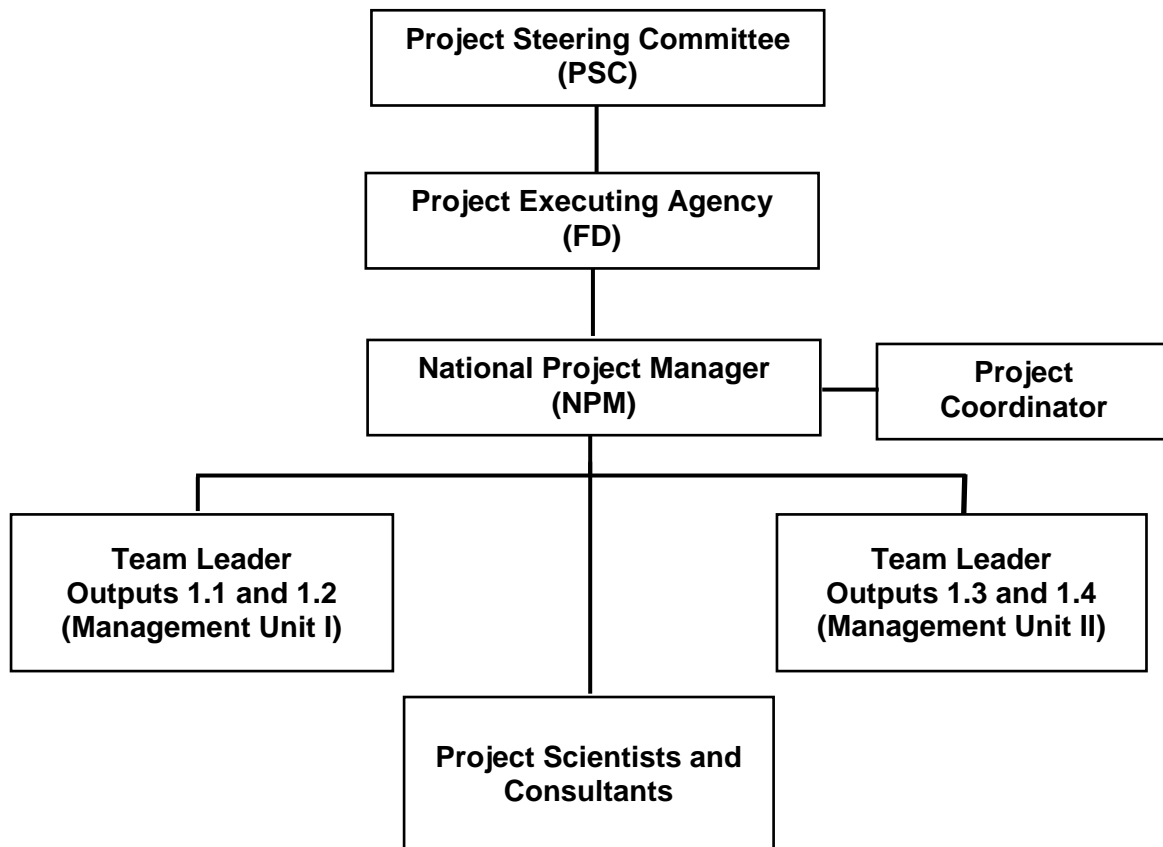
The executing agency of the project will be Forest Department of the Ministry of Forestry which will responsible to coordinate and implement the project activities and also managing the ITTO fund. The executing agency will be involved in the project from the preparation until completion of the project.

Executing agency will work together with Planning and Statistics Department, Dry Zone Greening Department, Myanma Timber Enterprise, Forest Research Institute, universities, local community groups, local NGOs and other relevant institutions to implement the project activities. If necessary, activities will be implemented through sub-contracts with local NGOs and consultancies for efficiency purposes.

Under the Forest Department, there are 7 Divisions, namely, (i) Planning and Statistics Division, (ii) Natural Forest and Plantation Division, (iii) Wildlife Conservation Division, (iv) Watershed Division, (v) Budget Division, (vi) Training and Research Division, and (vii) Inspection Division. Two academic institutions, Forest Research Institute and University of Forestry, also belong to the Forest Department.

The Project implementation team will be formed with experts and scientists from above mentioned Divisions, Forest Research Institute and University of Forestry under the close supervision of Project Steering Committee. The Director-General of the Forest Department will provide close supervision and continuous guidance to the national project manager to achieve the project objective.

**Project Organization Chart**



#### **4.1.2 Project Steering Committee**

The project steering committee (PSC) will consist of the following personnel:

- i. Director-General, Planning and Statistics Department, Ministry of Forestry (Chairman)
- ii. Director-General of the Forest Department (member)
- iii. Managing Director of the Myanmar Timber Enterprise (member)
- iv. Director-General of the Dry Zone Greening Department (member)
- v. Deputy Director-General, Forest Department (member)
- vi. Directors of the Forest Department Headquarters (members)
- vii. Director of the Forest Research Institute (member)
- viii. A representative of ITTO (member)
- ix. Representative (s) of donor countries (member (s) – with their own expenses)
- x. National Project Manager (Secretary)
- xi. Director of the Planning and Statistics Division, Forest Department (Project Coordinator)

The duties of the PSC are as follows:

- (a) To approve program and budgets of the various activities within the framework of the project approved by ITTO;
- (b) To conduct annual reviews and evaluation of the project implementation; and
- (c) To approve progress report before submission to ITTO and the Government of the Union of Myanmar.

#### **4.1.3 Project Management Team**

The project management team (PMT) will be made up of the following personnel:

Project Coordinator  
National Project Manager  
Team leader for Output 1.1 and 1.2 (Capacity building on REDD-plus)  
Team leader for Output 1.3, and 1.4 (MRV and reference level of emissions)  
Project Scientist (REDD-plus)  
Project Scientist (forest inventory)  
Project Scientist (RS/GIS)  
Project Scientist (Extension)  
Representative of key stakeholder group (from NGOs, Local authorities, local communities)

The duties of the PMT are as follows:

- (a) To facilitate the implementation of project activities to ensure that the outputs envisaged in the project are achieved within the time line;
- (b) To provide technical supports for smooth implementation of the project activities as necessary; and
- (c) To collaborate with the international and national consultants;

#### **4.1.4 Stakeholder involvement and mechanism**

All relevant stakeholders will be involved throughout the project i.e., from planning stage to implementation. Their role would include strategic planning in REDD-plus readiness, formulation of REDD-plus national strategy and capacity building programmes, REDD-plus demonstration activities, extension activities, public environmental education programmes, analysis of the drivers of deforestation and forest degradation; identification and valuation of ecosystem services; benefit sharing arrangements. Forest Department and local communities would play active role in the overall execution of field activities, especially capacity building on REDD-plus activities.

Project Technical Committee will also be formed to coordinate and facilitate the planning process of the project implementation. Experts from Planning and Statistics Department, Forest Department (including Forest Research Institute and University of Forestry), Dry Zone Greening

Department, Myanmar Timber Enterprise, line Ministries, local NGOs and local communities in the project site will be invited for the Project Technical Committee, Responsibilities and roles assigned to key stakeholders in this project are as follows:

- a) Planning and Statistics Division of the Forest Department
  - Monitor coordination of all parties in implementing project according to objectives and activities proposed
  - Manage fund within project budget and in accordance with ITTO guidelines and procedures
  - Prepare and submit all project reports to ITTO on time
  - Maintain a smooth flow in executing the project collaborating with all relevant agencies
  - The REDD Core Unit of the Forest Department will be involved in the implementation of the project
  - Facilitate FRIM and ITTO in executing the project in phases
  - Coordinate meeting and dialogue to be organized throughout the duration of the project
- b) Forest Research Institute and University of Forestry
  - Provide technical support to forestry related work
  - Share information relevant to forest aspect of REDD+ Mechanism
  - Involved in the implementation of the project with Planning and Statistics Division of the Forest Department
- c) Role of other stakeholders (Line ministries / Private sectors / NGOs)
  - Active engagement in implementing activities under sustainable management practices
  - Involvement in training activities to capacity-build professional personnel for the project
  - Coordination and active participation in project activities
- d) Role of local communities
  - Participation in the process of developing strategy
  - Involvement in capacity building trainings and awareness raising activities
  - Involvement in program and activities related to SFM initiative in order to reduce forest degradation

## **4.2 Reporting, Monitoring, and Evaluation**

### **4.2.1 Reporting**

#### **(a) Periodic Project Progress Reports**

Periodic progress reports of the project will be made available to ITTO twice a year, 4 weeks before the intended date of monitoring visits, which will coincide with 2 months prior to the usual biannual ITTO Council Sessions. Assuming the project starts at 1<sup>st</sup> April in Year 1, tentative month of submission of progress reports to ITTO will be as follows.

1 <sup>st</sup> Project Progress Report	March, Year 1
2 <sup>nd</sup> Project Progress Report	September, Year 2
3 <sup>rd</sup> Project Progress Report	March, Year 2
4 <sup>th</sup> Project Progress Report	September, Year 3
5 <sup>th</sup> Project Progress Report	March, Year 3
6 <sup>th</sup> Project Progress Report	September, Year 4



7<sup>th</sup> Project Progress Report      March, Year 4

The reports will conform to the standard format established in the *ITTO Manual for Project Formulation (1999)*. These reports will contain information on project performance for each activity and, if possible, completed outputs.

**(b) Project Completion Report**

The project completion report will be submitted to ITTO as soon as possible after the completion of and in any case within three months.

The Project Leader will undertake this responsibility in compliance with the Project Agreement and *ITTO Manual for Project formulation (1999)*.

**(c) Project Technical Reports**

Project technical report will be submitted to ITTO within three months of Project Completion. Midterm technical reports will be submitted to ITTO when any assigned outputs have been achieved according to the work plan. The reports will be made in conformity with the *ITTO Manual for Project Monitoring Review and Evaluation*.

**4.2.2 Monitoring**

The project will be subject to monitoring by ITTO representatives according to the ITTO guidelines. Monitoring visits by ITTO representation(s) may be fixed by the ITTO or consulted with the Executing Agency. Appropriate time of monitoring field visits should be made during open season every year in March during the PSC meeting. The Steering Committee meetings should take place once in each 12 month cycle so that the Committee could advise the project on on-going activities to ensure smooth implementation.

**4.2.3 Evaluation**

The project will formally be subject to participatory evaluation in accordance with ITTO guidelines. There are several monitoring activities as explained above which can provide the necessary guidelines to the implementation team. However, an ex-post evaluation should be conducted to assess the overall impact of the project.

**4.3. Dissemination of project results and mainstreaming of project learning**

**4.3.1 Dissemination of project results**

The results and lessons learnt of the project will be disseminated through a communication plan with the following elements.

- (i) **Launching and Closing Workshops:** The project launching and closing workshops will be used to reach all relevant stakeholders with information on the relevance of the project and its contribution to sustainable management of mangrove forests and livelihoods improvement for local communities.
- (ii) **Publications and conferences:** Project results will be published in the ITTO Tropical Forest Update. The project will explore opportunities to present results at national and international conferences. Publications will be distributed to relevant target groups such as research agencies, NGOs and universities. Scientific publications will also be made in scientific journals.
- (iii) **Web site** will be developed on the internet to disseminate the results of the activities completed.
- (iv) **Media publications** will also be made especially during the project steering committee meetings.

- (v) Policy briefs: A project summary and recommendations targeting decision makers will be distributed to the government institutions such as Ministry of Forestry, Ministry of Agriculture and Irrigation and Ministry of Livestock and Fisheries.

#### **4.3.2 Mainstreaming of project learning**

Projects results are intended to be mainstreamed into local and national policies. Information relating to carbon stock in project site, status of forest resources, and livelihood improvement for local communities and technical lessons learnt in the Toungoo District can be used for the formulation of integrated REDD-plus plan for the Bago Yoma Region and applied to other regions as well.

In addition, the results of the project can be used as baseline information for policy planning at the local and national levels. Information on carbon stock and other environmental services in particular will contribute to national carbon accounting and further strengthen Myanmar's commitment to the global climate agenda, particularly the UNFCCC and the Kyoto Protocol.

Forest Department has been revising its 30 year forest management master plan every 5- year for each every management unit across the country, including Toungoo District (project site of this proposed project). Accordingly, present experiences of managing the project will serve as future reference not only in developing potential schemes of similar capacity in reducing emissions but also to put it in the on-going management plan of project site (Toungoo District Forest Management Plan) as well as other areas. Improved understanding policy formulation will be useful in crafting policies in near future.

## **ANNEX A: PROFILE OF THE EXECUTING AGENCY (FOREST DEPARTMENT, MINISTRY OF ENVIRONMENTAL CONSERVATION AND FORESTRY)**

The Ministry of Environmental Conservation and Forestry (MOECAF) of Myanmar is the most responsible institution for managing the forests and forest resources while ensuring conservation of biodiversity and ecological functions of the forests in the country. Diverse forest ecosystems exist due to different natural settings. Mixed deciduous forest and hill and temperate evergreen forest constitute 37% and 25% respectively as the major forest types. The Forest Department (FD) is one of the four institutions under the MOF being responsible for protection and conservation of biodiversity and sustainable management of the forest resources in the country. The FD has applied Myanmar Selection System (MSS) for more than a century and a half since 1856. As a result, about 50% of the country's total area is still forested. Policy, legislations and institutional framework are well in place. Within the FD, xx divisions are formed with specific duties and responsibilities. It has more than 15,000 staff being engaged in different forestry-related activities.

At present, reserved forests (18.23%), protected public forests (5.89%) and protected areas system (3.93%) constitute its permanent forest estate – PFE (28.06% of total land area of the country). While conserving the natural forests, FD has been establishing different types of forest plantation for particular objectives basically to complement the decreasing yield from natural forests. Today, private venture in forest plantations is increasingly encouraged by the State to promote the active involvement of the private sector in the forestry sector. The valuable forest resources of the country are well managed and utilized in accordance with long-term plan (National Forest Master Plan), medium-term plan (district forest management plan) and short-term plan (annual work plans).

The FD is taking environmental measures such as greening the *Bago Yomas* (home of premier natural teak), promoting forestry development in border areas, stabilizing shifting cultivation, managing watersheds, ecosystem restoration of Inlay Lake, and conservation of mangrove ecosystems. Biodiversity conservation is always prioritized at the national level as it is stipulated in 1995 Myanmar Forest Policy that up to 5% of the country's landmass in the short term and 10% in the long term will be placed under PAS for conserving biodiversity, both floral and fauna. Myanmar has made commitments to several international agreements and organizations and carried out relevant activities by itself or with the collaboration and coordination with national and international organizations. With regard to forestry education, research and development, University of Forestry (UOF), Forest Research Institute (FRI), Myanmar Forest School, and several training centers have been established with a specific mandate to produce competent foresters, trained forest technicians and carry out research activities.

The FD has achieved major developments towards sustainable forest management (SFM) which is the key mandate in Myanmar forestry. Among others are development of community forest, promoting herbal and medicinal plants, formulation of district forest management plans covering the whole country, formulation of a national forest master plan, promoting the concepts of model forests, and identification of Myanmar's Criteria and Indicators (C&Is) for SFM.

Like other developing countries in the tropics, Myanmar is being faced with several challenges and issues. Among them, deforestation, forest degradation and poverty of rural community are the most challenging issues in conserving the forests in Myanmar. FD has given serious attention to institutional strengthening, effective and efficient planning, capacity building, awareness raising, stakeholders' involvement in forest conservation and livelihood improvement of forest dwellers.

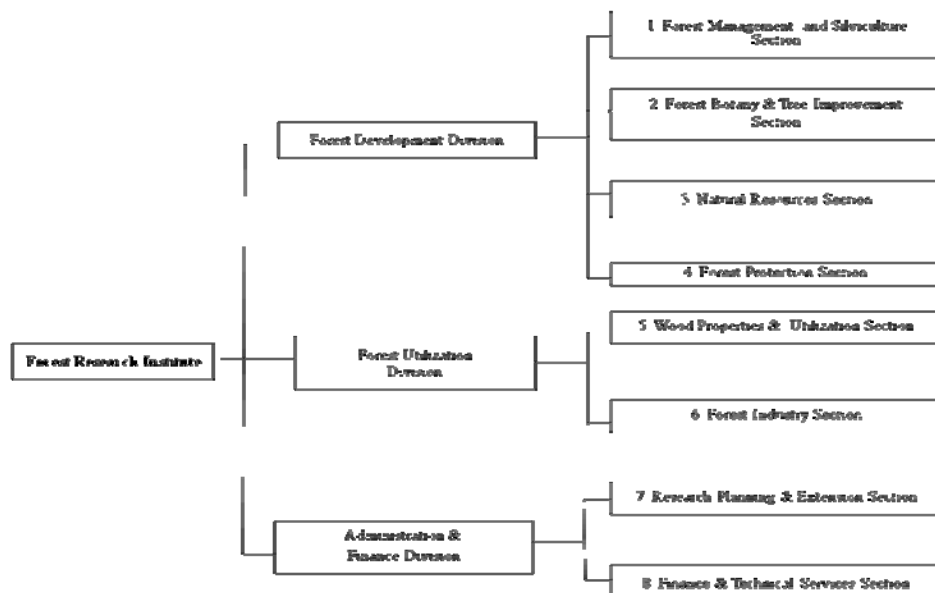
## ANNEX B: PROFILES OF FOREST RESEARCH INSITTUTE AS PART OF THE FOREST DEPARTMENT

The Ministry of Environmental Conservation and Forestry (MOECA) is the responsible ministry having responsibility all forestry matters in Myanmar. Under the same umbrella of the Ministry, the Planning and Statistics Department coordinates and facilitates the activities of the Forest Department, Dry zone Greening Department and the Myanmar Timber Enterprise. Of them, the Forest Department is responsible for the protection and conservation of biodiversity and sustainable development of all forest resources. The project proposed by the Forest Department (FD) as an Executing Agency (EA) in view efficient capacity of implementing the project meeting its objective in a given period.

Being established since colonial time, the FD has been the oldest well organized department among the government organizations. The FD has accumulated huge experiences on protection and conservation of forest in sustainable manner contributing to national development as well.

Under the administrative control of the Director-General of Forest Department, the Forest Research Institute (FRI) was established in 1978. The main objective of the Forest Research Institute is to provide technical information of all aspects of Forestry and forest-based activities to increase the contribution of the forest and forest-lands to the well-being of the nation. Now the FRI is conducting research activities with the strength of 77 researchers and 202 supporting staff equipped with research facilities. Up to now, about 200 research papers have been documented; some 26 research studies in diverse fields of forestry are on-going. They are possessing advanced education and expertise in various forestry operations the FD and FRI as well.

The Institute is formed with three divisions, namely forest development division, administration and finance division, and forest utilization division which are divided into eight sections under the supervision of a director. Eight research stations are settled in areas of different ecological zones to conduct field research activities throughout the country. FRI has at present 50 researchers and 187 support staff out of a total of 279 sanctioned staff.



Under the technical guidance of the Research Supervising Committee, FRI has prioritized the following research programmes based primarily on the anticipated development in forestry sector.

- (i) Sustainable Forest Management in Natural Teak Forests
- (ii) Development of Economic Plantations
- (iii) Reforestation in the Central Dry zone
- (iv) Development of the non-wood forest Products
- (v) Fuelwood Resources Development and Wood Energy Conservation Measures

A total of 205 research papers (basis and applied) were already submitted to the annual Research Congress from 1978 until today. FRI's permanent offices and laboratories are located at Yezin, Nay Pyi Taw. It has 8 research stations distributed in different ecological zones of the country.

#### **Services and extension activities**

- Part time teaching at the University of Forestry (UOF), Yezin, Myanmar
- Contribution of expertise and experience to the training programme of Central Forest Training Development Centre (CFDTC)
- Disseminating the research findings to related institutions and private firms

#### **Membership to international organizations**

- Asia-Pacific Association of Forestry Research Institutions (APAFRI) (2004)
- International Union of Forest Research Organization (IUFRO) (2007)

With regards to the International Collaboration, the International Tropical Timber Organization (ITTO) has granted four projects to FD of Myanmar. The first project, namely "Introducing Myanmar's Lesser-Used Timber Species to the World Market" had already been completed. The second project, namely "Teak-based Multistoried Agro-forestry System: *An Integrated Approach Towards Sustainable Development of Forests*" was successfully accomplished. The third project, namely "*Promotion of Sustainable Utilization of Bamboo through Community Participation in Sustainable Forest Management*", has recently completed in March 2007. The fourth project "Ex-situ and In-situ Conservation of Teak (*Tectona grandis* Linn f.) to support Sustainable Forest Management" has been launched in April 2006. Last but not least, Forest Research Institute of Forest Department implemented a pre-project, entitled "Assessment of Mangrove Forest Affected by Cyclone Nargis to Facilitate the Development of an Integrated Mangrove Ecosystem Management in Ayeyarwady Delta, Myanmar PPD 143/09 (F)". Successful completion of those projects reflects the good enough efficiency of the FD in implementing ITTO projects.

## **ANNEX C. TERMS OF REFERENCE OF PROJECT PERSONNEL**

### **National Project Manager**

The National Project Manager (NPM) will be appointed by the Executing Agency to be in charge of general management and reporting of the project. He/she should be a professional with M.Sc. or preferably Ph.D. degree in Forestry or one of the forestry-related disciplines with an extensive knowledge and expertise in management and conservation of forest resources. He/she should have a minimum of 10 years of experience in forestry issues with sound technical knowledge and expertise in project areas and particularly skills for the management of the project activities in constant coordination with all relevant stakeholders in order to accomplish the objectives of the project within the time frame. He/she should have an ability to interact with sectoral authorities at the regional and national levels.

Duties include:

- Coordinate with the project staff and provide technical and administrative guidance for the implementation of planned activities
- Ensure effective collaboration and full participation of all relevant stakeholders as well as strong project linkage with national forestry programmes
- Prepare project annual operational plans
- Ensure proper financial accounting of project funds
- Identify and supervise project consultants
- Ensure timely delivery of progress outputs
- Prepare project reports
- Implement the recommendations of the Project Steering Committee.
- Promote the dissemination of project results

### **Project Administrative Officer**

An administrative officer must be a B.Sc. (forestry) degree holder with extensive experience in forest conservation and management with knowledge in the project management and distribution of financial resources.

The main responsibilities of the an administrative officer will include;

- Directly liaise with and provide administrative support to the National Project Manager for the implementation of project activities.
- Prepare monthly financial statements for the project and provide updated information to the technical team for adequate decision-making.
- Prepare progress reports to ensure their timely submission.
- Make logistic arrangements as required for the optimal implementation of project activities.
- Be responsible for the acquisition of materials and supplies (ensuring timely supply of goods).
- Prepare documentation for the delivery of tools and materials to target beneficiaries.

### **Terms of Reference for project Team Leader (Capacity building on REDD-plus)**

He/she is responsible for capacity building on REDD-plus for staff of Ministry of Environmental Conservation and Forestry and relevant stakeholders. He will work in close collaboration with national and international consultants, and project scientists to ensure quality delivery of Outputs 1.1 and 1.2. He will be the lead facilitator for the smooth implementation of the project activities related to Outputs 1.1 and 1. 2.

### **Terms of Reference for project Team Leader (MRV and reference level of emissions)**

He/she is responsible for research and capacity building on MRV and setting reference level of emissions. He will work in close collaboration with national and international consultants, and project scientists to ensure quality delivery of Output 1.3. He will be the lead facilitator for the smooth implementation of the project activities related to Output 1.3.

## **ANNEX D. Terms of Reference for International and National Consultants**

### **International Consultant for MRV and identification of reference level of emission**

The international consultant on MRV system will be responsible for (1) providing technical advice on organizing software and hardware infrastructures for the establishment of a national MRV system for mangrove forest; (2) preparing manuals/instructions and reports related to MRV system; (3) conducting trainings on MRV system among the FD staff and relevant stakeholders; and (4) monitoring national level forest monitoring. The international consultant will work in close coordination with the national consultants. The consultant has to carry out the duties assigned to him within the timeline.

Qualification: The international consultant must be a professional having extensive expertise, knowledge and experience in MRV system for REDD-plus with more than 5 years of working experiences in qualified relevant bodies. The consultant must hold M.Sc. or preferably Ph.D. with a good command of English.

Duration: 2 months

Duty Station: Nay Pyi Taw, Myanmar

Payment: US\$ 6, 000 per month

### **International Consultant for preparing REDD-plus strategy**

The international consultant for National Strategy will be responsible for (1) preparing national REDD-plus strategy; (2) organizing trainings for capacity building on REDD-plus strategy; and (3) organizing national workshop on formulation as well as approval on REDD-plus strategy. The international consultant will work in close coordination with the national consultants. The consultant has to carry out the duties assigned to him within the timeline.

Qualification: The international consultant must be a professional having extensive expertise, knowledge and experience in REDD-plus with more than 5 years of working experiences in qualified relevant bodies. The consultant must hold M.Sc. or preferably Ph.D. with a good command of English.

Duration: 3 months

Duty Station: Nay Pyi Taw, Myanmar

Payment: US\$ 6, 000 per month

### **International Consultant for assessment of carbon stock**

The international consultant for National Strategy will be responsible for (1) measuring baseline carbon stock through permanent sample plots; (2) organizing trainings for capacity building on IPCC guidelines for carbon measurement; and (3) determining reference levels of carbon emissions of project site; and (4) preparing technical report for carbon stock and reference level of carbon emissions. The international consultant will work in close coordination with the national consultants. The consultant has to carry out the duties assigned to him within the timeline.

Qualification: The international consultant must be a professional having extensive expertise, knowledge and experience in carbon accounting and REDD-plus with more than 5 years of working experiences in qualified relevant bodies. The consultant must hold M.Sc. or preferably Ph.D. with a good command of English.

Duration: 3 months

Duty Station: Nay Pyi Taw, Myanmar

Payment: US\$ 6, 000 per month

### **National Consultant on RS/GIS**

The national consultant on GIS will be responsible for (1) assessing the present status of forests in Toungoo District using RS/GIS technology; (2) preparing maps; (3) conducting trainings on the application of RS/GIS technology; and (4) providing technical advice on hardware and software infrastructure for MRV system establishment, calculating baseline data of carbon emissions, carbon stock and setting reference scenario of emission. The national consultant will work in close

coordination with the international consultants. The consultant has to carry out the duties assigned to him within the timeline.

Qualification: The national consultant must be a forestry professional having extensive expertise, knowledge and experience in the application RS/GIS technology in forest resource management with more than 10 years of working experiences in qualified relevant bodies. The consultant must hold a M.Sc. or preferably Ph.D. degree with adequate proficiency in English.

Duration: 3 months

Duty Station: Nay Pyi Taw, Myanmar

Payment: US\$ 1,200 per month

### **National Consultant on Extension**

The media development specialist will be responsible for (1) assisting the project in preparing technical reports; (2) assisting the project in publishing project publications; and (3) collecting photos, information and video materials related to the project and disseminating project outputs through different media. The specialist will work in close coordination with the national consultants. The specialist consultant has to carry out the duties assigned to him within the timeline.

Qualification: The specialist must be a media professional having sufficient expertise, knowledge and experience in media development with more than 10 years of working experiences in qualified relevant bodies. The specialist must hold a B.Sc. or preferably M.Sc. degree with acceptable proficiency in English.

Duration: 9 months

Duty Station: Nay Pyi Taw, Myanmar

Payment: US\$ 1,200 per month

### **National Consultant on MRV**

The national consultant on MRV will be responsible for (1) assessing the present status of forests in Toungoo District using RS/GIS technology; (2) preparing maps; (3) conducting trainings on the application of MRV of carbon stock; and (4) providing technical advice on hardware and software infrastructure for MRV system establishment, calculating baseline data of carbon emissions, carbon stock and setting reference scenario of emission. The national consultant will work in close coordination with the international consultants. The consultant has to carry out the duties assigned to him within the timeline.

Qualification: The national consultant must be a forestry professional having extensive expertise, knowledge and experience in the application RS/GIS technology in forest resource management with more than 10 years of working experiences in qualified relevant bodies. The consultant must hold a M.Sc. or preferably Ph.D. degree with adequate proficiency in English.

Duration: 3 months

Duty Station: Nay Pyi Taw, Myanmar

Payment: US\$ 1,200 per month

### **National Consultant for conducting underlying causes of deforestation**

National Consultant for conducting underlying causes of deforestation will be responsible to conduct research to investigate the major roots of deforestation and forest degradation in Myanmar in General and Toungoo District as a specific study site. National Consultant is responsible to prepare technical report and make presentation at the Workshop to be organized by the project.

Qualification: The national consultant must be a forestry professional having extensive expertise, knowledge and experience in forest management and forest policy with more than 10 years of working experiences in qualified relevant bodies. The consultant must hold a M.Sc. or preferably Ph.D. degree with adequate proficiency in English.



Duration: 2 months  
Duty Station: Nay Pyi Taw, Myanmar  
Payment: US\$ 1,200 per month

## ANNEX E: RESPONSES TO REVIEWER COMMENTS

Reviewer Comment*	Amendment(s) made**	Page #***
<p><b>Comment 1: Conformity with ITTO's objectives and priorities</b>  <i>Efforts have been made but there is a need to rework following the standard presentation sub-titles of the ITTO Project Formulation Manual. Compliance with the ITTO Action Plan 2008-2011 should be elaborated instead of the ITTO Yokohama Action Plan.</i></p>	<p><i>Compliance with the ITTO Action Plan 2008-2011 has been elaborated.</i></p>	8
<p><b>Comment 2: Problem analysis</b>  <i>There is need to further improve this section: more clear presentation of the key problem to be addressed by the project; and focused discussions with the three causes (Lack of REDD-plus national strategy, weak institutional setting for capacity building on REDD-plus and Lack of capacity to conduct MRV of carbon stocks) presented in the problem tree.</i></p>	<p><i>Texts were revised accordingly.</i></p>	21
<p><b>Comment 3: Logical framework matrix</b>  <i>Not satisfactory. Further need to improve the indicators. Inconsistent presentation of the outputs in the LFM compared to the revised outputs (Current output 1.3 should be deleted).</i></p>	<p><i>Logical framework matrix was revised. Current output 1.3 was deleted. Budget of output 1.3 was also deleted accordingly.</i></p>	24
<p><b>Comment 4: Development objective and impact indicators</b>  <i>The LFM included the development objective and the indicators but there is the need to improve the impact indicators.</i></p>	<p><i>Impacts indicators were improved accordingly.</i></p>	26
<p><b>Comment 5: Specific objective and outcome indicators</b>  <i>Further need to identify measureable measurable indicators.</i></p>	<p><i>Specific Objective was revised accordingly.</i></p>	26
<p><b>Comment 6: Implementation approach and method</b>  <i>Partially provided.</i></p>	<p><i>Some explanations were added.</i></p>	27
<p><b>Comment 7: Consolidated budget by component</b>  <i>Not taken. Needs to be addressed.</i></p>	<p><i>Budgets were revised.</i></p>	31
<p><b>Comment 8: ITTO budget by component</b>  <i>Sound presentation but recalculate the ITTO Program Support Costs (8%) from the amount of the subtotal 2.</i></p>	<p><i>ITTO Program Support Costs were recalculated accordingly.</i></p>	38
<p><b>Comment 9: Assumptions and risks</b>  <i>Further need to identify measures to address the identified risks.</i></p>	<p><i>Texts were revised accordingly.</i></p>	42

*Please expand table as needed*

- \* *In this column please insert the individual reviewer comments*
- \*\* *In this column please describe which change(s) you made (see examples)*
- \*\*\* *In this column please insert the page number where changes have been made*