



PROJECT IDENTIFICATION FORM (PIF)
PROJECT TYPE: FULL-SIZED PROJECT
TYPE OF TRUST FUND: GEF TRUST FUND

PART I: PROJECT IDENTIFICATION

Project Title:	Sustainable cropland and forest management in priority agro-ecosystems of Myanmar.		
Country:	Myanmar	GEF Project ID:	5123
GEF Agency(ies):	FAO	GEF Agency Project ID:	618969
Other Executing Partner(s):	Ministry of Agriculture and Irrigation; Ministry of Environmental Conservation and Forestry	Submission Date:	February 1, 2013
GEF Focal Area (s):	Multi Focal Areas	Project Duration (months):	60
Name of parent program (if applicable): For SFM X		Agency Fee:	587,388

A. FOCAL AREA STRATEGY FRAMEWORK: THE FOCAL AREA OBJECTIVES, OUTCOMES AND OUTPUTS SHOULD BE WRITTEN EXACTLY AS IN THE FA STRATEGY DOCUMENT

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Indicative Grant Amount (\$)	Indicative Co-Financing (\$)
CC-5: Promote conservation and enhancement of carbon stocks through sustainable management of land use land-use change and forestry.	5.1. Good management practices in LULUCF adopted both within the forest land and in the wider landscape.	Forests and non-forest lands under good management practices.	GEFTF	1,360,425	3,400,000
	5.2. Restoration and enhancement of carbon stocks in forests and non-forest lands, including peatland.	Forests and non-forest lands under good management practices.	GEFTF	1,020,320	2,600,000
	5.3. GHG emissions avoided and carbon sequestered.	Carbon stock monitoring systems established.	GEFTF	1,020,319	2,500,000
LD-3: Reduce pressures on natural resources from competing land uses in the wider landscape.	3.1 Enhanced cross sector enabling environment for integrated landscape management	Integrated land management plans developed and implemented	GEFTF	408,984	1,200,000
	3.2: Integrated landscape management practices adopted by local communities	Information on INRM technologies and good practice guidelines disseminated.	GEFTF	613,475	1,000,000
SFM/REDD-1 Reduce pressures on forest resources and generate sustainable flows of forest ecosystem services.	Outcome 1.1: Enhanced enabling environment within the forest sector and across sectors.	Types and quantifies of services generated through SFM	GEFTF	663,529	1,400,000
	Outcome 1.2: Good management practices applied in existing forests.	Forest area (hectares) under sustainable management, separated by forest type.	GEFTF	810,979	1,000,000
Sub-Total				5,898,031	13,100,000
Project management cost				285,000	400,000
Total project costs				6,183,031	13,500,000

B. PROJECT FRAMEWORK

Project Objective: To build the capacity of farming and forestry stakeholders to mitigate climate change and improve land condition by adopting climate smart agriculture and sustainable forest management policies and practices.

Project Component	Grant Type	Expected Outcomes	Expected Outputs	Trust Fund	Indicative Grant Amount (\$)	Indicative Cofinancing (\$)
Component 1. Strengthened institutional, policy and regulatory frameworks.	TA	<p>1.1. Enabling institutional, policy and regulatory framework for SFM and improved cropland management (ICIM) /SLM resulting in:</p> <ul style="list-style-type: none"> - Improved sustainable forest management planning across 13,444,000 ha of production forest. - More secure tenure rights and incentives motivate the local population to scale-up SFM. - Improved land-use management planning across at least 6 districts. - 64,000 ha croplands under effective land use management with vegetative cover maintained or increased. 	<p>1.1.1 A package of modifications in cropland and forest regulations, policies and standards for ICIM, SFM, including: (i) more streamlined process for registering taungya and community forest lands; (ii) bylaws with healthy forest criteria, management standards for SFM and guidelines for enforcement; (iii) benefit sharing regulations to incentivize SFM at community levels; (iv) strengthened more flexible land-use planning policies enable use of agriculture and forest lands.</p> <p>1.1.2. Pilot district and township level Land Use Advisory Committees pilot regulations for land-use planning.</p> <p>1.1.3. Updated national forestry masterplan with SFM/REDD and community forestry (CF) elements and updated agricultural masterplan with climate smart agriculture/ICIM principles.</p> <p>1.1.4. Training in SFM and ICIM at national, state, and district levels (FD staff, forest user groups, farmers and local govt).</p> <p>1.1.5. Pilot digital land-use mapping process in priority districts include new, flexible categories for customary use of forest/agriculture and reconciles forest/agriculture land boundaries.</p>	GEFTF	<p>864,031</p> <p>CC: 566,064</p> <p>LD-2: 52,459</p> <p>REDD: 245,508</p> <p>TOTAL: 864,031</p>	2,000,000
Component 2. Improved Cropland Management (ICIM) Practices Demonstrated by Farmers in Priority Agro-Ecosystems of Myanmar.	TA	<p>2.1. Farmers adopt CSA/ ICIM/SLM practices across wide areas, resulting in:</p> <ul style="list-style-type: none"> - 40,000 hectares of rice under improved cropland management resulting in: avoided emissions from cropland degradation of 48,000 tCO₂e/year. - 20,000 hectares of annuals under improved cropland management resulting in: avoided emissions from cropland degradation of 62,000 tCO₂e/year - land use across 4,000 ha of upland and dryzone degraded annual cropland changed to agroforestry with perennial crops yields 130,000 tCO₂e/year. 	<p>2.1.1 ICIM/CSA practices pilot tested by Agricultural University, Agricultural Research Department, Department of Agriculture in 3 priority agro-ecosystems.</p> <p>2.1.2. Township level agricultural extension service plans for climate smart agriculture/ improved cropland management (CSA/ICM) practices.</p> <p>2.1.3 ICIM/CSA practice/ technology demonstrations with early adopter teams (EATs) of model farmers at township level.</p> <p>2.1.4. EATs farm plans for adopting ICIM/CSA across 64,000 ha.</p> <p>2.1.5. Pilot integrated land-use plans for priority agro-ecosystems.</p>	GEFTF	<p>2,055,000</p> <p>CC5: 1,585,000</p> <p>LD: 470,000</p> <p>TOTAL: 2,055,000</p>	7,000,000

Component 3. Models for sustainable forest management and enhancing carbon storage in priority agro ecosystems demonstrated.	TA	<p>3.1 FD pilots improved multi-functional forest management in closed forestlands:</p> <p>50,000 ha of forestlands under improved multi-functional management, results in:</p> <ul style="list-style-type: none"> - avoided emissions (AE) <i>short-term benefits accruing project years 3-5: 1,148,125 tCO₂e & long-term years 6-20): 11,481,250 tCO₂e</i> - <i>SFM knowledge effectively transferred (FD tackle multi-sectoral issues).</i> <p>3.2. FUGs empowered and capacitated to implement SFM practices in 10,000 ha of forest land, resulting in:</p> <ul style="list-style-type: none"> - <i>4,000 ha under improved SFM reduces degradation: benefits accruing years 4-5 for AE & C Storage: 21,560tCO₂e. For years 6-20 (post-project) : 385,195 tCO₂e;</i> - <i>4,000 ha under improved SFM reduces deforestation: benefits accruing years 4-5: 16,967 tCO₂e; year 6-20: 294,835 tCO₂e.</i> - <i>2,000 ha of low productivity dryland agricultural land) brought under a taungya teak agroforestry system, yielding short term C storage benefits of: 12,122 tCO₂e in years 3-5; and long-term benefits of 136,372 tCO₂e.</i> 	<p>3.1.1. 4 newly revised FD District Forest Management Plans incorporate multi-functional/SFM objectives.</p> <p>3.1.2. Guidelines on how to elaborate improved District level forest management plans.</p> <p>3.2.1a. Improved Forest User Group (FUG) SFM across 4,000 ha degraded closed forest reduces degradation (AE) and increases C sequestration.</p> <p>3.2.1b Reduced deforestation of 4,000 ha of FUG managed un-classed forest.</p> <p>3.2.1c. Community forest plantations on 2,000 ha of dryland forest.</p> <p>3.2.2. Baseline carbon data documented, impact of REDD+ related management interventions, in terms of carbon emission reductions, biodiversity and social benefits measured, reported and verified in 20 pilot sites.</p> <p>3.2.3. At least 20 FUG business plans to strengthen marketing of forest products.</p>		<p>2,679,000</p> <p>CC: 1,150,000</p> <p>LD-2: 400,000</p> <p>REDD: 1,129,000</p> <p>Total: 2,679,000</p>	3,000,000
Component 4. Knowledge management, Training, & Scaling up of SLM and SFM Practices.		<p>4.1 Scaled-up sustainable and participatory forest management (PFM) systems integrate SFM practice, resulting in improved land condition and carbon sequestration.</p> <ul style="list-style-type: none"> - <i>objectives main-streamed into SFM plans covering at least 500,000 ha of forestlands across Myanmar.</i> 	<p>4.1.1 Communications plan: development and dissemination of good practice guidelines for FUG SFM.</p> <p>4.1.2 At least 100 pilot PFM plans designed and applied by FUGs.</p> <p>4.1.3. Collaborative sustainable SFM/SLM financing plan for Myanmar developed by Gov't, UNREDD, UNCT and other partners.</p>	GEFTF	<p>300,000</p> <p>CC: 100,000</p> <p>LD-2: 100,000</p> <p>SFM: 100,000</p> <p>TOTAL: 300,000</p>	1,100,000

	TA	<p>4.2. Enhanced capacity and knowledge base for forest and cropland management and monitoring resulting in:</p> <ul style="list-style-type: none"> - Improvement in capacity development indicators as per Capacity Development Scorecard [baseline app.18%; target 40%]. 40 policy makers, 25 extension agents, 75 field staff; and 3000 FUG members applying SLM/SFM practices. - Awareness of ecosystem service and other benefits from sustainable land, forest management increased by 30% over baseline levels in 3 target audiences (law makers, government staff and FUGs). - increased uptake of SFM (number of user groups engaged in SFM increases against baseline target). 	<p>4.2.1. a) Strengthened capacity of institutions across sectors to collaborate and manage the forest landscape; b) forest inventory capacity strengthened to include carbon and other forest ecosystem services.</p> <p>4.2.2 Stakeholders at national, state and local levels have improved access to knowledge and data, strengthened social networks and new social capital to enable more sustainable management of cropland and forest resources (e.g. National FUG Center/ Association established with active lobbying and learning networks)</p> <p>4.2.3. Targeted education, awareness and outreach campaigns aimed at specific target audiences.</p> <p>4.2.4. M&E system established to measure project progress and impact.</p>	GEFTF		
Sub-Total					5,898,031	13,100,00
Project management Cost					285,000	400,000
Total project costs*					6,183,031	13,500,000

C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, (\$)

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount (\$)
National Government	Ministry of Agriculture and Irrigation	In-kind	10,000,000
National Government	Ministry of Environmental Conservation and Forestry	In-kind	2,000,000
GEF Agency	FAO	Grant	500,000
Multilateral Agency	UN-Habitat	In-kind	1,000,000
Bilateral Aid Agency(ies)	TBD under PPG	Grant (€- million)	TBD
Multilateral Agency	TBD under PPG	Grant	TBD
Total Co-financing			13,500,000

D. GEF/LDCF/SCCF RESOURCES REQUESTED BY AGENCY (IES), FOCAL AREA(S) AND COUNTRY

GEF Agency	Type of Trust Funds	Focal Area	Country Name	Amount (\$)		
				Project amount (a)	Agency Fee (b)	Total c=a+b
FAO	GEFTF	Climate change	Myanmar	3,566,364	338,805	3,905,169
FAO	GEFTF	Land Degradation	Myanmar	1,070,909	101,736	1,172,645
FAO	GEFTF	Multi-focal Areas	Myanmar	1,545,758	146,847	1,692,605
Total Grant Resources				6,183,031	587,388	6,770,419

PART II: PROJECT JUSTIFICATION

A. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

A.1.1. THE GEF FOCAL AREA STRATEGIES:

1. The project seeks synergies across the Land Degradation (LD) and Climate Change Mitigation (CCM) Focal Areas and is consistent with the SFM strategy of the GEF-5. The project addresses CCM-5: "Promote conservation

and enhancement of carbon stocks” by enabling Myanmar to adopt good management practices in LULUCF including restoring and enhancing carbon stocks in forests and croplands. The project addresses LD-1 “Maintain or improve flow of agro-ecosystem services to sustaining the livelihoods of local communities” by strengthening the enabling environment among sectors (agriculture, environment, forestry) comprising agro-ecosystems in Myanmar, engineering a paradigm shift from unsustainable crop and forestland practices leading to degradation to sustainable forest and cropland management. It will demonstrate and scale up innovative and proven participatory forest management practices which support community use rights and improve forest management practices to maintain natural forest cover and ecosystem services in dry-land habitats. The project has been designed in line with GEF Guidelines for SFM/REDD+ Mechanism. Myanmar is committed to creating the legal, regulatory, scientific and practical grounds for inclusion of its forests in international forest markets; the project creates capacities for the proliferation of good management practices pertinent to SFM and REDD. SFM incentive funding will help to establish a sound policy environment to recognize the value of forest ecosystem functions and reduce greenhouse gas (GHG) emissions from deforestation and forest degradation.

A.2 NATIONAL STRATEGIES AND PLANS OR REPORTS AND ASSESSMENTS UNDER RELEVANT CONVENTIONS:

2. The project supports and furthers many of the priority program areas under Myanmar Agenda 21 (1997). So too, will the project support and further key priorities expressed in The Forest Law (1992), which highlights environmental conservation and the participation of people in the conservation and utilization of forest resources. Myanmar ratified the UNFCCC on 13 Aug 2003 and it entered into force on 16 Feb 2005. This project supports CC mitigation priorities as expressed in the Initial National Communication to the UNFCCC (INC 2012) and its priority measures to reduce GHG emissions in the agriculture and livestock sectors and the land use change and forestry sector. A total of fifteen priority initiatives are presented in the INC in these sectors. This project will contribute to the aims of four directly related to rice cultivation and nutrient management, and four on forestry-related concepts for improving forest condition and extent. The project supports or complements some of the main objectives of the revised National Action Program on Climate Change (NAPCC 2011), including: increasing forest cover; improving the legal environment and amending the Forest Law to support SFM and protection; and introducing new environmental technologies and practices to reduce GHG emissions and to shift to less carbon emitting economy.

3. Myanmar acceded to the UN Convention to Combat Desertification in January 1997. This project supports many of the main program priorities and principles identified in the National Action Programme to Combat Desertification (2005) including the need for more locally driven SLM to address LD and prevent land degradation and desertification, as well as the need for more soil conservation programmes; and promotion of sustainable mountain farming and forest systems. The project supports the three priority goals of the National Sustainable Development Strategy (NSDS 2009), which includes conservation of natural resources and minimizing negative impacts due to human activities such as over exploitation, illegal logging, shifting cultivation, and ensuring the well being of the people and eradication of poverty. Improved cropland management and productivity will be central to these priorities. The NSDS calls for the enactment of a national land use policy for SLM, something to which the project will contribute. This project supports two of the eight priority areas of work under the National Rural Development and Poverty Reduction Programme by developing sustainable agricultural and forest management and improving the capacity of the stakeholders to secure agricultural productivity as well as environmental sustainability.

B. PROJECT OVERVIEW:

Forest land classes (FRA 2010)	Extent in “000” ha			
	1990	2000	2005	2010
Closed forest	30,883	23,504	18,475	13,444
Open forest	8,335	11,364	14,846	18,329
Total forest	39,218	34,868	33,321	31,773
Other Wooded land	19,498	19,703	19,908	20,113
Other land	7,039	11,184	12,526	13,869
Inland Water bodies	1,903	1,903	1,903	1,903
Total Area of Country	67,658	67,658	67,658	67,658

B.1. DESCRIBE THE BASELINE PROJECT AND THE PROBLEM THAT IT SEEKS TO ADDRESS:

3. There are seven different types of forest in Myanmar: mangrove (4%), tropical evergreen (16%), mixed deciduous (37%), tropical dry (10%), temperate deciduous (5%), highland temperate evergreen (25%), and scrubland (3%). About half the country’s land area is classified as forest land, while approximately one fourth is classified as agricultural land (see two tables below on forest and agriculture land classes). The forest land is classified as “closed forest”, “open forest” and “other wooded land.” *Closed forest* is mature forest

with a closed canopy and a full standing stock. *Open forest* is forest whose standing stock has been reduced through a combination of subsistence and commercial agriculture expansion and commercial timber cutting. Open forest is more likely to be under threat from further encroachment because it is already partially degraded and more likely to border on agricultural areas. Both of these lands are under the management of the Forest Department (FD) and its MSS system. *Other wooded land* is land with forest cover that is not classified legally as forest land and can include the full range of forest condition from closed to open to severely degraded forest.

4. Estimated area changes¹ from 1990-2010 show that the total forest area decreased from 57% of total land in 1990 to 47% in 2005, a decline of 7,445,000 hectares during this period. The decrease in area has been accompanied by a shift from closed to open forest across Myanmar's forestlands: in 1990, there was more than three times more closed than open forest; in 2010, the extent of open forest was approximately 50% greater than that of closed forest. In 1990, Myanmar's dense forest covered more than 45% of the country's territory (the single largest land use). By 2010, the extent of the country's dense forests had been reduced by more than half, to ~20%.

5. Reflecting this decline in quantity and quality of forests is the combined volume of the ten primary species of trees that comprise Myanmar's timber growing stock. This overall volume has decreased dramatically from 1340 million m³ (47.8% of total growing stock) to 559 million m³ (19.5%). Concurrently, between 1990 and 2010, total above and below ground forest biomass decreased by 20% with carbon decreasing by approximately the same percentage, from 2,040 million metric tonnes C in 1990 to 1,654 metric tonnes C in 2010.

Biomass category (FRA 2010)	Forest Biomass (million metric tonnes dry weight)			
	1990	2000	2005	2010
Above ground biomass	3618	3217	3074	2931
Below ground biomass	724	643	615	586
Total	4,342	3,860	3,689	3,517
Carbon (C) in biomass	C (million metric tonnes)			
	1990	2000	2005	2010
Above ground C	1700	1512	1445	1378
Below ground C	340	302	289	276
Total	2,040	1,814	1,734	1,654

6. Despite these challenging trends, the FRA indicates that Myanmar is still endowed with a forest covered area of 47% of the country's total land area of 676,658 km², one of the highest in the Asia-Pacific Region. In Myanmar, all forests are owned by the State. The vast majority of Myanmar's forest lands are under the management responsibility of the Forest Department, Ministry of Environmental Conservation and Forestry (MOECF).

7. Myanmar has a long history of forest management beginning in 1856, when the FD was established. Myanmar become well known for its scientific management of natural forests now called the "Myanmar Selection System" or MSS. The MSS was designed to maintain a high yield of quality timber and enhance the natural regeneration of commercially valuable trees. The forest management system was supported by foresters trained in the Myanmar Forest School, established over a century ago. But these forest management systems and educational institutions were created in a time when Myanmar's forests were vastly different than they are today, as illustrated by the figures above.

8. The FD issued the Community Forestry Instruction (CFI) in 1995 to engage local populations in forest management. CFI is a landmark Instruction in Myanmar as it is the first time that community groups were allowed to obtain certified use rights to forest land. Under the CFI, community members form forest user groups (FUGs) and develop a management plan. Upon approval of the plan by the FD, the FUG receives 30 year use rights documented in a Community Forestry Certificate. The 30 year Forest Master Plan (FMP 2001) mandated that 2.27 million acres be managed by FUGs by 2030-31. Although the majority of the 500 FUGs established to date are not yet operational, policy makers consider CFI to be an important, albeit under-developed mechanism for SFM in Myanmar. Community forest establishment over the last 15 years has averaged 6,943 acres (2,810 ha) per year. This has been too low to meet the FMP mandate, with only 1,572 FUGs managing 104,000 acres of forest. To meet the FMP mandate, some 50,000 acres/year would have to be enrolled under CFI.

Agriculture land classes (000' ha)	1995/96	2005/06	2007/08	2009/10
Net area sown	8,910	10,922	11,707	11,965
Fallow land	1,231	368	264	243
Cultivable waste land	7,971	6,279	5,789	5,618
Subtotal	18,112	17,569	17,760	17,826
Other land	17,147	16,553	16,594	16,609
Reserved forests	10,321	15,707	16,756	17,145
Other forests area	22,079	17,829	16,548	16,080
Total	67,659	67,659	67,659	67,659

Source: MoAI, Settlement and Land Records Department.

9. Primary Causes of Deforestation and Degradation: In South Asia, agriculture expansion is the primary driver of deforestation. The expansion of subsistence agriculture and commercial agriculture account for 2/3 of the area deforested overall². In Myanmar, subsistence agriculture is a bigger driver of deforestation than commercial. This is why this project's focus on small holder farmers is appropriate and strategic. A second less prominent but important driver of forest degradation is excessive timber extraction. Critical underlying drivers of deforestation and degradation include: insecure tenure and weak forest and land governance and institutions.

10. Land tenure. Land tenure security, defined as "the assurance that land-based property rights will be upheld by society" is an important determinant of forest and land use outcomes that slow deforestation and enhance cropland management practices. Land tenure in much of Myanmar historically has been regulated by customary law. Customary land tenure law and institutions are village based and are a combination of collective action (clearing land)

¹ Forest Resource Assessment (FRA) for Myanmar. 2010. UN Food and Agriculture Organization (FAO).

² Drivers of Deforestation and Forest Degradation: A Synthesis Report for REDD+ Policymakers.

and individual use or *dama-ucha* (he who yields the machete becomes the owner).³ In traditional systems, the village elders are responsible for allocating land and mediating disputes. As customary institutions evolve and new statutory institutions emerge (i.e. CFI) it will be critical to ensure that customary and statutory institutions support each other in ways that provide security and opportunity for small holder farmers and community forest groups.

11. Current mechanisms to register community agricultural and forestry land, though positive, may not provide a secure legal guarantee for land tenure at the village level. According to Myanmar's Agricultural Census in 2003, some 35%-53% of the rural population is landless. Upland rotational fallow farming households are particularly vulnerable to the loss of access to land and/or to being classified as landless. The gap between customary law and civil law vis-à-vis land tenure is a significant underlying factor contributing to deforestation and land degradation in Myanmar. Customary tenure and conflict resolution mechanisms often apply in land disputes to today. This is partly by default, since most upland rotating fallow fields (*taungya*) are not formally or fully registered with the Settlement and Land Records Department (SLRD) under the Ministry of Agriculture and Irrigation (MoAI). SLRD is responsible for the certification and tax assessment of agricultural lands. Though *taungya* land is assessed and taxed annually on the basis of village records and SLRD surveys, most *taungya* land is not formally registered, certified or mapped. SLRD field notebooks indicate village boundaries through sketch maps and landmarks and are the only formal documentation of *taungya* land kept by the SLRD.

12. To promote agricultural growth, the government has sought to expand cultivated land and to cultivate fallow land permanently. As the table above shows, the amount of fallow land in Myanmar has diminished during the past decade and cropland area and irrigated area have increased by more than 20%. The objective to expand the area of cultivated land was based partly upon 1990 land use statistics that showed ~20 million acres of agricultural land was not utilized efficiently and thus categorized as "cultivable wasteland" (see table above). In what became known as the "Wasteland Instructions" of 1993, a company may apply for up to 5,000 acres of land at a time for a cumulative total of 50,000 acres. By 2010, over 1.7 million acres had been allocated to over 200 companies in 11 States and Regions. *Taungya* land in its fallow state reverts to the category of "cultivable land" or "wasteland" and is thus available for allocation to commercial enterprises. Not always registered, grazing land is also at risk of being considered "cultivable wasteland."

13. *Weak forest sector governance and institutions.* Perhaps the most important gap or weakness in forest and cropland governance in Myanmar is the outdated and/or overlapping forest and agriculture land classification categories and boundaries. Land classification boundaries themselves, set a century ago in many cases, no longer reflect the actual use of land in question, nor even match ecological characteristics of the land. Such inaccuracies unintentionally enable inappropriate land-use decision making with respect to local level outcomes. For example, land classified by MoAI on national level maps as "potentially productive land" and targeted for conversion to cropland and pasture land, may in fact already be very productive. The same is true vice-versa: the FD classifies some land as "forest land" that has no forest, but is managed as such. This national land classification system that can target good forest for conversion to cropland while leaving lands with no forest untouched. This situation leads to inefficiencies in land use such as the needless conversion of good forest or pasture lands to croplands, when in fact, the most appropriate use for them given local conditions would be traditional agroforestry type of land use, i.e. *taungya*.

14. While the current system of land classification was originally designed to protect the farmer the inflexible nature of it has the unintended impact today of constraining sustainable land use and land tenure guarantees for farmers. For example, in many upland systems, it may be more accurate to view rotational fallow farmers as stewards of the forest, or as managers of rotational forest. GEF investment will be focussed upon enabling a shift in perspective away from a focus on simply making agriculture "permanent" and towards a focus on sustainable and productive forest and land management, would enable policy support for holistic and locally appropriate tenure institutions. For example, *taungya* sites could also be considered community forests under CFI, a flexible and appropriate move that would in turn provide more secure land tenure for communities practicing *taungya* cultivation and afforestation⁴.

15. Twenty percent of Myanmar's forests are degraded. Excessive timber logging is an important driver of forest degradation (Note the distinction between degradation here and deforestation above) in tropical Asia⁵. In Myanmar, logging does not clear cut forests but rather primarily extracts high-value teak trees. Done inappropriately, this can degrade the forest. One underlying cause of this is the ineffective application of Myanmar's sustainable forest harvest system or MSS. There are less knowledgeable foresters in the field now than in the past. Forest management practice has lost some of its dynamism and technical know-how in recent years, given the reduced level of interaction among Myanmar foresters and counterparts worldwide. This has caused the quality of Myanmar's forest management planning process for its closed forest areas as well as open forest areas, to decline. As a result, forest management plans do not include the latest in silvicultural practices, they lack specific guidance on how to apply these practices. And finally, the plans are not prepared in a participatory manner, undermining the ownership and support of local

³ Food Security Working Group. Briefing Paper. Land Tenure: a foundation for food security in Myanmar's uplands.

⁴ *Taungya* afforestation is the formation of a forest crop in which forest trees are established in combination with temporary cultivation of agricultural crops.

⁵ Ibid

stakeholders. Underlying causes also include political pressure to harvest more of the valuable teak timber to generate hard currency. In [some](#) cases this can lead to cutting that exceeds Myanmar's own MSS prescribed levels. As Myanmar's isolation lessens and governance continues to improve, this will likely improve too (see risks and assumptions section of PIF).

16. Agriculture context: Cropping systems and patterns vary according to agro-climatic conditions. In the irrigated areas, paddy-paddy or paddy-pulses-paddy patterns dominate. In the dry zones and other upland rainfed areas, the mixed cropping or intercropping of pigeon pea with sesame or peanut or other pulse patterns are practiced. In mountain or hilly region's upland paddy, maize, millet, oil crops, and pulses are also grown. Many farmers still practice shifting cultivation in these areas. Paddy, pulses and oilseeds are the dominant crops. Nationwide, rice is the largest crop, planted on over 8,000,000 hectares, with 33,204,500 tonnes produced annually. Rice is the largest crop emitter of GHG in Myanmar, with 34,400,000 tCO₂e in 2008 (<http://edgar.jrc.ec.europa.eu>).

Myanmar's main crops (http://faostat.fao.org/)				
Crops	Area Harvested (Ha)			
	2005	2007	2009	2010
Groundnuts	684,000	755,500	840,000	824,300
Maize	319,510	345,000	345,000	343,500
Rice, paddy	7,384,000	8,011,000	8,000,000	8,051,700
Seed cotton	285,000	300,000	300,000	300,000
Sesame seed	1,337,900	1,367,000	1,570,000	1,570,000
Soybeans	143,000	155,000	160,000	165,000
Sunflower seed	510,000	585,000	885,000	906,800
Vegetables	238,921	256,046	272,279	277,900
Pulses	3,126,700	3,566,600	3,954,921	3,780,000

17. Forest management. The MOECF's annual budget is approximately US\$ 21,000,000. This includes forestry staff and operations, research, and specific field projects such as the Bago Yoma Greening Project. Main activities include: a) planning and establishment of forest plantations in degraded lands and previously forested lands, including an extensive network of tree nurseries; b) tree thinning, teak girdling, felling and harvesting using elephants; c) forest cleaning, weeding, and fire protection; d) forest infrastructure construction; e) natural forest management, encouraging natural regeneration; f) research on forest and plantation productivity. In addition the Dry Zone Greening Department's (DZGD) annual budget is ~US\$ 950,000. This work focuses upon afforestation and land rehabilitation; village plantations; fuelwood substitution for communities; natural forest conservation; and small scale irrigation.

18. Afforestation efforts to date in Myanmar have been centralized, limited in scope, and oriented more towards industrial forest plantation-style approaches rather than working with communities to enhance natural forest mosaics. Implementation of the MSS faltered in recent decades and the quality and health of Myanmar's natural forests has been declining due to the inappropriate and/or excessive harvest of high-value trees with little or no attention given to the rest of the forests through improved felling, thinning, and so on. Myanmar's forest management approach has been shifting to try and meet the challenges of a new era, from highly centralized control and a focus on timber to some decentralized community elements and a broader focus on local communities and their interactions with forests, forest ecosystems, biodiversity as well as timber. However, these changes have been too small and too slow to keep pace.

19. Under the FD's baseline program, forest management in Myanmar will continue to be production-oriented with minimal SFM and carbon sequestration objectives included. Forest ecosystem health objectives will not be mainstreamed into management planning and practice, and benefit sharing with local communities will continue to be an under-developed concept with little practical foundation in forest governance. Existing customary institutions and practices (taungya) as well as statutory initiatives (CFI) show the way forward to develop Myanmar-specific benefit sharing mechanisms, but these have yet to be developed. GEF resources will enable stakeholders to do this, to create some flexibility in forest land use planning and management that rests upon flexible land-use categories agro-ecosystems and encourage productivity and sustainability through enhanced land tenure at the village level.

20. Land Use Planning/Tenure: In June 2012, the Government of Myanmar formed the Scrutinizing Committee on Land Use (SCLU) to formulate a new National Land Use Policy and Land Use Management Plan. Chaired by the MOECF, the SCLU will work with FAO, other UN agencies and development partners to secure technical and financial support. SCLU's near-term priorities include: 1) land-use survey training and conducting pilot land-use surveys that will lead to land use surveys and data collection nation-wide; 2) formation of an Advisory Group of local and international experts to review land use policy, law, and regulatory experience worldwide.

21. This preparatory work will lead directly to the SCLU's development of a National Land Use Policy (NLUP), a Land Law (LL) and a Land Use Management Plan (LUMP). FAO is fielding a high-level land scoping mission to Myanmar to generate recommendations on the medium and long-term interventions to provide technical and financial support to the SCLU in the formulation of NLUP, the LL, and the LUMP. This will be a significant effort with development partners to enable Myanmar and the SCLU to implement the new voluntary guidelines on land tenure. This work will form an important part of the baseline project for this GEF incremental initiative. GEF incremental financing will provide the TA necessary to enable this land use policy and management planning to address directly the key drivers of deforestation and land degradation.

22. Since July 2011, the Ministry of National Planning and Economic Development has switched to bottom-up planning, with responsibilities devolved to Regions/States, Districts and Townships. At State/Region, District, and Township levels, Land Use Advisory Committees (LUAC) will be established, and will include civil society and private sector representatives. Agricultural Oversight Committees, comprised of sector ministry staff, meet regularly to resolve land use conflicts. These will need to be combined with LUAC or their respective roles clearly differentiated. This shift will take years to effect and will benefit from targeted pilot initiatives such as those that will be implemented with GEF and co-funding support. Civil society engagement has been sought actively on planning process reform from the Food Security Working Group, the Land Core Group and others.

23. *Agriculture:* The MoAI is also very much in the early stages of land tenure reform work, primarily through the Settlement and Land Records Department (SLRD). The new Farmland Law 2012 (FL012) provides the legal basis for this work. The FL012 distinguishes itself from the previous agricultural land laws in three important ways:

- It requires government to issue tenancy rights certificate to all bona fide farmers
- Tenants can lease, pawn, exchange, transfer land in their possession for agricultural purposes per prescribed rules
- It brings all the dispersed agricultural land administration related government services into a single body known as the Farmland Management Board (FMB).

24. For the first time the name of the tenant farmer owner will appear in the Record of Land Rights Register against each parcel. This will require FMB to ascertain the rightful owner of each parcel before the name can be entered. Before this is done, FMB will need to update the Kwin/Block maps⁶ to reflect changes in parcel boundaries as many are 100 years old or more. Under a LIFT⁷-funded initiative called “Land Administration & Management Program” (LAMP) the SLRD/FMB will work closely with UN Habitat to develop a GIS based cadastral system to re-survey the existing Kwins/Blocks, and create a database linked to digitized maps for updating and verification of parcels. This will need to be done in a collaborative way with the MOECAP and others to ensure forest and agriculture land are demarcated accurately. It also calls for new and innovative thinking about what “agriculture” and “forest” land are in the context of agroforest ecosystems and customary land tenure patterns and institutions. This is where GEF’s incremental investment will help ensure a better outcome for land tenure in rural agro-ecosystems – by better integrating land use policy and practice to enable SLM and SFM.

25. The MoAI’s primary objective is increasing crop production. The Department of Agricultural Research focuses its work on technological issues like producing high yielding varieties of rice, maize, sunflower, and pulses. The Department of Agriculture’s (DoA) Extension Division works to disseminate the relevant technologies (seed rate, fertilizer rate, crop management practices) for the particular varieties of crops through its township level offices across Myanmar. Experimental and demonstration plots are tended in agriculture farms under DoA. The Land Use Division under DoA focuses most of their efforts on building structural tools to carry out the government’s policy to permanently cultivate fallow land. The Division invests a lot of effort in establishing contour bunds, terraces windbreaks and demonstrations for Sloping Agriculture Land Technology, particularly in hilly areas of Shan State and dry zone areas where taungya is the customary agricultural land use technology in use for generations. The high cost of such activities undermines their sustainability.

26. Under the MoAI’s baseline agriculture development program, “sustainable and improved production” will continue to take a back seat to “increased production” resulting in land degradation from efforts to permanently cultivate fallow land and increasing injudicious use of agrochemicals such as fertilizers and pesticides. Under the baseline programme, the agriculture and forest departments will not collaborate in new and innovative ways at the local level to empower farmers to also be forest managers and to provide the basis for benefit sharing and long-term sustainable use. The GEF investment will demonstrate that it is possible to both increase production and do it sustainably, generating both national benefits (improved food security) and global (CC and LD) benefits (improved land condition, reduced GHG emissions).

27. These Government of Myanmar forest and agriculture management programs and UN-LIFT/MoAI land management project will serve as the primary elements of this proposed GEF project’s “baseline project” (see table below), co-funding key baseline elements that the GEF’s incremental support will complement to support the long-term building up of improved cropland and sustainable forest management capacity in Myanmar.

Baseline Co-financing	Name of Co-financier	Brief Description of Co-funded Baseline Project Activities	Type Co-financing	Amount (\$)
National Government	MoAI - Department of Agriculture	Hybrid seed research Development of structural measures to combat land degradation Extension work, office management, staff. Operationalization of the FMB and implementation of FL012.	In-kind	10,907,995

⁶ There are ~84,000 Kwins and 75 million parcels in the surveyed areas of the country covering ~85% of the country’s agricultural land, with the remaining 15% yet to be brought under a formal cadastre system, much of this in upland areas.

⁷ Livelihoods and Food Security Trust Fund

National Government	MoECF – Forestry Department (FD)	District forest management planning process Forest user group application review Tree nursery operations & forest plantation management. Fuelwood and fuel-efficient stove/alternative fuel stove distribution.	In-kind	2,000,000
Multi-lateral/UN	UN Habitat/ LIFT; MoAI	LAMP will enable SLRD to design and develop a GIS based cadastral system to: re-survey the existing Kwins/Blocks, and create a database linked to digitized maps for easy retrieval, updating and verification.	Cash	1,000,000
Total				13,750,000

28. The baseline programs described above fall short of achieving the long-term solution of sustainable land and forest management. This is due to in part because they do not adequately address the proximate and underlying causes of degradation as analyzed above. This is also due to the following barriers, which hamper stakeholders' ability to address proximate causes and underlying factors of forest loss and land degradation:

Barrier 1: Insufficient legal regulatory and institutional framework for sustainable forest and cropland management.

29. The primary policy, regulatory and institutional support needed for small holders is in the area of land tenure guarantees. Current parameters in policy and practices do not promote secure land tenure or build a foundation for sustainable forest and land management. This discussion focuses upon two parameters in this complex milieu: community forests and agricultural land, particularly taungya.

30. The evolution of a robust community forest program in Myanmar is hampered by the fact that the Community Forest Instruction (CFI) has no basis in law, which undermines the land tenure of FUGs and consequently their integrity as a legal entity. The CFI does not provide adequate guidance on how to establish FUGs in an inclusive and participatory manner. Existing rules and regulations restrict rural communities from planting and having ownership of high value forest tree species, hampering their ability to generate income. Strengthened legal elements for CF must include new incentives for community-based SFM and new policies and guidelines to ensure CF is socially inclusive of marginal groups, women and poorer households who may be the most forest dependent. This will no doubt include encouraging CF on better quality "open forest" lands in ways that also protect contiguous "closed forest."

31. With respect to forest and agriculture management, current policy, rules, and procedures present some important barriers that prevent stakeholders from developing and adopting new, more sustainable forest and land management practices. One barrier is the inflexible nature of the existing policy framework, which for example, places a higher value on "permanent" cultivation versus rotational cultivation. Current institutions and land registration mechanisms are bound by rigid definitions of *agriculture land* on the one hand and *forest land* on the other and may only be applied on land classified respectively. Consequently, existing policies do not recognize that in reality, farmers may be cultivating taungya or even permanent paddy on forest land or protecting forest on agricultural land, sometimes in parallel and sometimes in rotation. In addition, the legal framework does not formalize customary land tenure patterns or customary institutions for decision making. And finally, current land tenure guarantees cannot be called equitable in that they do not benefit men and women equally. Such inflexible systems do not support and protect the tenure of diverse systems that depend on flexible and alternating uses of land for agriculture, forestry, and agroforestry. This is perhaps the most significant governance related barrier – that fact that the existing policy framework does not promote secure land tenure by building a foundation for sustainable forest and land management in a way that integrates customary and statutory law and institutions for land management.

32. Rules and procedures. While land registration through the MoAI and the CFI under the MoECF are both positive policies and practices that help farmers secure land tenure, farmers are constrained by several practical and procedural factors. The MoAI allows local farmers to register their land, but this is done in a manner that does not securely measure, map, record, and report their holdings, undermining land tenure security. Insecure land tenure is a significant disincentive for farmers to adopt new more sustainable cropland management practices. The registration process is costly, time consuming and bewildering for small holder farmers.

33. Inadequate land-use plans and maps at the local level is an important barrier to improved land management. Mangrove conversion for paddy and aquaculture in part because of the lack of clarity on land-use planning and policy at the local level and in part because the true value of a healthy mangrove's ecosystem services is not quantified or understood by local people. Ecosystem services of mangroves not recognized or adequately valued. Inadequate linkages between forest and land use policies and the absence of an overall policy for the sustainable use of land leads to conflicting land-use planning objectives between forestry and agriculture. The implementation of SFM is hampered by the lack of "how-to" guidelines and by-laws for how FUGs can achieve multiple benefits and establish sustainable conditions and how results can be monitored and enforced. There are no guidelines or by-laws for how FUGS can mainstream biodiversity conservation objectives into productive forest management or how forests can be managed to promote carbon sequestration and/or avoid carbon emissions.

34. *Capacity barriers:* Although over 500 FUG have been established, there is no institutional CF support capacity yet developed in Myanmar. FD staff are not trained or well practiced in CF support methods. District forest

management plans do not include CF targets or FUG support priorities, leaving existing FUGs without adequate support from Government to overcome the inevitable problems such as conflicts over enforcement or disputes over benefit sharing. In addition, emerging civil society (NGOs, community-based organizations) lack a mechanism that could generate peer-to-peer training and support services for Myanmar's nascent network of FUGs.

35. Myanmar's FD capacity while fairly strong in technical forest management is in need of updating and refinement. Existing knowledge and skills are inadequate to meet the challenges posed by managing forest lands that are intertwined with a mosaic of land-uses across an agro-ecosystem (closed/open forest, taungya, croplands). For this new training programs and materials will be needed. For example, Myanmar's traditional taungya agroforestry practice may well be an important benefit sharing and community-management tool in some of Myanmar's forest lands, but forest staff are not trained in how to support such an approach in a collaborative way with a FUG.

36. Barrier 2: Minimal experience among key agriculture stakeholders in developing and implementing improved cropland management/climate smart agriculture practices on the ground. In Myanmar, with its large surface area and minimal government resources and capacity, effective SFM and SLM must happen through partnerships among government, local communities and civil society in ways that empower local stakeholders to take responsibility for results on the ground for improved cropland management. The trend is pointing in the right direction; farmers in Myanmar have increasing amounts of autonomy to plant what they like when they like, but a successful transition to more farmer-driven land management will require strengthened institutional capacity to improve the dissemination of climate smart agriculture information and coordinate over large areas and numbers of farmers. There is minimal experience in Myanmar in approaching cropland management in this way, and thus there is a great demand for "proof of concept" in this regard. Myanmar invests a considerable amount in research and development of agricultural technologies, but could use assistance in directing some of this targeted research to filling data and knowledge gaps with respect to climate smart practices that will facilitate the needed transition to high production, intensified, resilient, sustainable and low-emission agriculture.

37. The ability of farmers to achieve ICIM/CSA is hampered by very low levels of capacity to actually plan and implement improved land management, particularly with erosion control and carbon sequestration objectives mainstreamed. In addition, improving the productivity of small holders while enabling smallholders to make the transition to ICIM/CSA will require the financing of new kinds of incentives that draw upon innovative solutions, such as insurance, social safety nets and/or payments for environmental services.

38. Barrier 3: Minimal experience among key forest stakeholders in developing and implementing FD and CF-driven SFM practices on the ground. District forest management planning for SFM. Effective long-term forest management planning, including setting and enforcing allowable cutting limits, low environmental impact harvesting of logs from natural forests, greater local community participation and a regular, reliable and transparent approach towards monitoring and reporting of all forestry activities are all necessary for ensuring sustainability of forest cover and quality.

39. Across Myanmar's extensive forestland areas, there is a lack of experience in planning and implementing effective participatory forest management in government-managed forests and effective CF management. CF is still in its infancy and the gains made to date are fragile. More than half of a sample of FUGs recently studied had a performance deemed moderate or poor (ECCDI 2011). Stakeholders have inadequate experience with CF: how to develop and support it; how to apply improved forest management planning and silvicultural practices at the community level. There is no organized systematic training for FUGs and few have the required skills to manage their forest resources. FUGs very much require "proof of concept" as to the necessary requirements for sustainable CF (i.e. how to set up FUGs, internal management systems, planning and M&E, basic forestry technical skills, roles and responsibilities of local administration. FAO has supported the development and testing of these CF guidelines and practices elsewhere, but they do not mainstream C sequestration objectives and practices. GEF's incremental investment will fill this gap and enable them to be scaled-up rapidly.

40. In Myanmar, the proactive adoption and implementation of SFM plans by community groups in collaboration with the FD is still a novel concept. One of the primary barriers to the adoption of SFM in Myanmar is that few people have any experience with doing this. This absence of "proof of concept" is a significant barrier that this project is designed to overcome. Although Myanmar has a long history of forest management, there are still capacity constraints that must be overcome with respect to modern silvicultural techniques and community-based approaches. The ability to determine the condition and health of forests, avoided emissions from improved management and the carbon storage potential of existing stands are uncommon skills in Myanmar. There is no systematic approach to capacity building for SFM/SLM. Essentially no local authorities have any training in how to monitor and enforce by-laws specifying how to implement SFM, or on the importance of healthy forest ecosystems to control erosion. At the local level, producer and community-based organizations are poorly developed with limited opportunities for training in sustainable resource management.

41. Improving management practices in forestlands also has been hampered by inadequate coordination at the district and township level among the FD, Agriculture Department (AD) and local authorities over land-use. No land-use maps existing to facilitate such coordination. The real cost of erosion is very high in Myanmar but this cost has yet to be assessed by local authorities and ascribed to the value of healthy forests. This lack of experience undermines the ability of local governments and communities to ensure that the natural resources upon which they depend are stewarded in a sustainable way.

42. Increasing interest, knowledge and confidence in community-based SFM is hampered by inadequate studies that test and demonstrate alternative tree and shrub species and agroforestry models such as taungya with local communities and officials. In some ecosystems, farming and forest management can be effectively combined for the long-term benefit of rural communities and for the sustainable production of valuable timber species. The adoption of improved forest management by the FD and FUGs is hampered by an inadequate capacity to provide information and expertise about community forestry to a large number of villages throughout the country and to do so in simple, practical terms.

43. In the baseline scenario, stakeholders will continue to struggle to reverse trends leading to the loss of forestlands and the degradation of croplands because baseline programs will struggle with addressing the key drivers of deforestation and degradation. Critical underlying causes related to governance will be addressed inadequately and stakeholders will struggle to overcome key barriers to reducing deforestation and degradation. Without GEF's incremental support, investments will not focus on integrating carbon sequestration and SFM objectives into productive forest management practices and policies and SFM will remain in its infancy because it will not be transferred effectively to the emerging CF mechanism.

B. 2. INCREMENTAL / ADDITIONAL COST REASONING: DESCRIBE THE INCREMENTAL (GEF TRUST FUND) OR ADDITIONAL (LDCF/SCCF) ACTIVITIES REQUESTED FOR GEF/LDCF/SCCF FINANCING AND THE ASSOCIATED GLOBAL ENVIRONMENTAL BENEFITS (GEF TRUST FUND) OR ASSOCIATED ADAPTATION BENEFITS (LDCF/SCCF) TO BE DELIVERED BY THE PROJECT:

44. The proposed project builds on and complements the baseline project. The GEF funded alternative will address the proximate drivers and underlying causes of deforestation and degradation as well as capacity constraints and policy barriers to mainstreaming biodiversity conservation and SFM into productive forest management practice. The objective of the GEF funded alternative is to build the capacity of farming and forestry stakeholders to mitigate CC and improve land condition by adopting climate smart agriculture and sustainable forest management policies and practices. Innovation: The project seeks to build upon and complement the cultural ecology of small holder farmers by applying an agroecosystem approach to integrate forest and cropland management. In so doing, the project will not only generate global benefits including carbon storage, improved land cover, water provision, land stabilization, and biodiversity, but it will also generate significant critical national benefits in terms of enhanced food security in a region of the world where food insecurity is high. The incremental approach and global benefits⁸ are summarized in the table below:

Baseline	Project Alternative	Global Benefits
Croplands		
Scenario 1: Sustainable rice intensification		
Inefficient water management; Continuously flooded paddys ½ paddy straw burned, ½ fed to animals. 3x more urea used than in alternative & not site-specific; low organic matter return. Shorter fallow periods w/no crop rotation w/ legumes leads to soil degradation, increased emissions, and reduced soil organic matter (SOM), i.e. carbon stored in soil. <i>Carbon fluxes without project: 5.9 tCO₂e/ha/year emissions (source).</i>	Improved water management; Intermittently flooded paddys. ½ paddy straw incorporated into field; ½ used as animal feed. Deep placement of granules and site specific nutrient management (1/3 of baseline). Use of short duration and improved seed varieties; Crop rotation using legumes increases SOM; reduces fertilizer use. <i>Carbon fluxes with project: 4.7 tCO₂e/ha/year emissions (source).</i>	Avoided emissions (sink): 1.2 tCO ₂ e/ha/yr @ 20,000 ha in Shan State and 20,000 ha in Coastal area; 40,000 ha X 1.2 tCO ₂ e/year/ha @ 4 years = 192,000 tCO ₂ e for project lifespan. 40,000 ha X 1.2 tCO ₂ e/year/ha @ 15 years = 720,000 tCO ₂ e for 15 year post project. Total avoided emissions: 912,000 tCO ₂ e. *Carbon calculations done using FAO ExAct Tool.
Scenario 2: Improved Annuals		

⁸ Note that there are other benefits to this project apart from the carbon and SLM related benefits as summarized in this table and the Project Framework Table. For example, improving land and forest management will yield biodiversity benefits. These have not been highlighted here as the project does not seek funding under GEF's Biodiversity focal area.

Baseline	Project Alternative	Global Benefits
<p>Tenure insecurity disincentive for sustainable use.</p> <p>Burning crop residues; Frequent tillage.</p> <p>Monocropping.</p> <p>Exposed hill tops planted in annuals prone to erosion.</p> <p>No water harvesting/ collection measures.</p> <p><i>Carbon fluxes without project: .63 tCO₂eq/h/year emissions (source).</i></p>	<p>Land use planning and tenure system enhances local tenure security;</p> <p>Compost of crop residues; Minimum/no tillage,</p> <p>Crop rotation/diversification, and mixed cropping; improved nutrient management</p> <p>More perennial/fruit trees on hill tops instead of erosion-prone annual crops.</p> <p>Reduce soil erosion via soil-water conservation, and contour farming.</p> <p>Improved crop varieties more resistant to drought.</p> <p><i>Carbon fluxes with project: 2.42 tCO₂eq/ha/year emissions (sink).</i></p>	<p>Avoided emissions (sink): 3.1 tCO₂eq/ha/year</p> <p>Assuming 10,000 ha in Shan State & 10,000 ha in Dry Zone (Magwe Region):</p> <p>20,000 ha X 3.1 tCO₂e/ha/year = 62,000 tCO₂/year X 4 years = 248,000 tCO₂e over life of project.</p> <p>20,000 ha X 3.1 tCO₂e/ha/year = 62,000 tCO₂/year X 15 years = 930,000 tCO₂e for 15 year post project.</p> <p>Total sequestration: 1,178,000 tCO₂e.</p>
Scenario 3: Land-use change to perennials		
<p>No soil conservation measures</p> <p>Unsustainable cropland management practices in erosion prone areas...</p> <p>Minimal soil cover..</p> <p>Baseline source/sink = 0</p> <p>Very few perennial crops</p> <p>Agroforestry not widely practiced</p> <p>Trees not integrated in the landscape</p> <p><i>Carbon fluxes without project: 0 tCO₂eq/h/year emissions (source).</i></p>	<p>Agroforestry with annuals and perennials.</p> <p>Agroforestry with annual cropping to increase soil fertility, water retention, and to decrease soil erosion</p> <p>Integrate multi species tree nurseries to ensure seedlings and seeds are available</p> <p>Integrated trees in landscape for C sequestration and multi-functionality: fodder, fuel, construction materials, biodiversity, and environmental conservation.</p> <p>Perennial cropping of suitable trees/shrubs with market value e.g. spices, fruit trees</p> <p><i>Carbon fluxes with project: 32.47 tCO₂eq/ha/year sequestration (sink).</i></p>	<p>Sequestration (sink): 32.5 tCO₂eq/ha/year</p> <p>Assuming 2,000 ha in Shan State & 2,000 ha in Dry Zone (Magwe Region):</p> <p>4,000 ha X 32.5 tCO₂e/ha/year = 130,000 tCO₂/year X 4 years = 520,000 tCO₂e over life of project.</p> <p>4,000 ha X 32.5 tCO₂e/ha/year = 130,000 tCO₂/year X 15 years = 1,950,000 tCO₂e for 15 year post project.</p> <p>Total sequestration: 2,470,000 tCO₂e.</p> <p>LD benefit across three scenarios above:</p> <p><i>64,000 ha croplands under effective land use management with vegetative cover maintained or increased.</i></p>
Forests		
Scenario 1: Inappropriate management by the FD		

Baseline	Project Alternative	Global Benefits
<p><i>Non-project scenario</i> is unsustainable production forest management in 50,000 ha of FD-managed forest, average density 80 m³/ha, average net degradation of 5m³/ha/yr.</p> <p>Top-down timber production-oriented forest management discounts SFM principles, excludes local uses.</p> <p>Inadequate capacity to plan and implement SFM.</p> <p>Main drivers are:</p> <ul style="list-style-type: none"> - Technical deficiencies in FM – unsustainable timber extraction - Damage to ecosystem from careless extraction methods - Unplanned extraction of forest products to meet local needs - Insufficient resources and infrastructure for forest protection - Lack of local stake in forest management strategy - Insufficient technical resources for forestry training institutions - Lack of capacity in multi-purpose forest management planning 	<p><i>Project scenario</i> is management under the MSS with 0 m³/ha net gain/loss by year 4 of the project. Degradation will be halted and a balance between extraction and recuperation will be maintained.</p> <p>Improved SFM-based management planning in FD-managed “closed forest” lands.</p> <p>Capacity building in MSS and other SFM techniques to FD employees in the field.</p> <p>Forest inventory capacity building and new inventories carried out in target areas.</p> <p>Improved SFM strategies developed and implemented in target areas.</p> <p>Reduced Impact Logging (RIL) strategy development, capacity building and implementation</p> <p>Regular forest resources needs assessment of local communities and incorporation into production forest management planning</p> <p>Incorporate local usufruct rights to forest products into ongoing reforms of land tenure and forest policy</p> <p>Local feedback system for forest management planning, grievance mechanism at DFO level to sanction nonconformity with agreed management plans</p>	<p>1) Improved multi-functional SFM by FD across 50,000 ha of closed forest with average density of 80m³/ha, currently logged unsustainably at the rate of 5m³/ha/year yields short-term and long-term global benefits in the form of avoided emissions (AE):</p> <p><u>Short-term</u> benefits accruing project years 3-5: 313,125 tC or 1,148,125 tCO_{2e}. Note: assumes benefits begin accruing in year 3.</p> <p><u>Long-term</u>: years 6-20 (post-project): 3,131,250 tC or 11,481,250 tCO_{2e}</p> <p>2) Improved SFM management across 13,444,000 ha of forest over the long-term.</p>
Scenario 2: Community forests: Reduced Degradation		
<p>Unplanned fuel wood harvest and overgrazing by local communities degrades forests;</p> <p>FUGs have no timber rights and limited rights to forest products from CF.</p> <p>SFM not tied to incentives for FUGs to implement SFM.</p> <p>Encroachment/conversion of natural forest areas to farmland and plantations (upland) due to unsustainable extraction of timber, minor forest products and shifting cultivation.</p> <p>Forest ecosystem services not quantified or valued.</p>	<p>Community forest management plans allow for sustainable offtake of fuel wood, fodder.</p> <p>Partnership between FD & FUGs enable forest conservation.</p> <p>Socially inclusive FUGs formed and supported by a gender and pro-poor approach and support for equity.</p> <p>Benefit sharing incentives for FUGs</p> <p>Actual community forest management plans documented and operational.</p> <p>Regular annual monitoring of forest management interventions in 8,000 ha of community managed forest and measurement of social and environmental impacts of these activities, and the change in biomass and forest carbon pools.</p>	<p>3) Improved community-based SFM across 4,000 ha reduces degradation (AE) and increases C sequestration.</p> <ul style="list-style-type: none"> - 4,000 ha of degraded closed forest, with average density of 30 m³/ha, currently degraded at the rate of 2m³/ha/yr, to be brought under sustainable community forest management, leading to restoration of 1m³/ha/yr by year 4, and 80m³/ha in the long term. <p><u>Short-term</u> benefits accruing project years 4-5: AE: 5,010 tC or 18,370 tCO_{2e} C storage: 870 tC or 3,190 tCO_{2e} Note: assumes project effects (AE) begin year 4 and end at year 5 (project end).</p> <p><u>Long-term</u>: years 6-20 (post-project): AE: 98,530 tC or 361,270 tCO_{2e}; C storage: 6,525 tC or 23,925 tCO_{2e}</p>
Scenario 3: Community forests: Reduced Deforestation		

Baseline	Project Alternative	Global Benefits
<p>Unclassed forests under the administration of MOAI are converted to agricultural land</p> <p>No cooperation between MOAI and FD in the management of Unclassed Forest Land</p> <p>Unmanaged, unsustainable extraction of forest products by local communities</p> <p>Unplanned encroachment by local communities and conversion of Unclassed Forests to agricultural land</p> <p>No land tenure or usufruct rights of local communities to Unclassed Forest land</p>	<p>Community forest management plans allow for sustainable extraction of fuel wood, fodder, timber and other forest products</p> <p>Partnership between MOAI, FD & communities enables forest conservation.</p> <p>Socially inclusive community forest users' groups formed and supported by a gender and pro-poor approach and support for equity.</p> <p>Actual community forest management plans developed, documented and operational.</p> <p>Regular annual monitoring of forest management interventions in 4,000 ha of community managed forest and measurement of social and environmental impacts of these activities, and the change in biomass and forest carbon pools.</p>	<p>Improved community-based SFM across 4,000 hectares reduces deforestation (avoided emissions) and increases C sequestration.</p> <ul style="list-style-type: none"> - 4,000 ha of unclassified degraded closed forest, with average density of 30 m³/ha, currently under threat of conversion to agriculture, to be brought under sustainable community forest management, leading to restoration of 1m³/ha/yr by year 4, and 80m³/ha in the long term. <p><u>Short-term</u> benefits accruing project years 4-5: AE: 3,758 tC or 13,777 tCO₂e C storage: 870 tC or 3,190 tCO₂e Note: assumes project effects (AE) begin year 4 and end at year 6 (project termination). <u>Long-term</u>: years 6-20 (post-project): AE: 73,898 tC or 270,910 tCO₂e; C storage: 6,525 tC or 23,925 tCO₂e</p>
Scenario 4: Community forest plantations		
Limited implementation of traditional taungya system.	Expansion of taungya agro-forest systems under teak plantations in dry zone forests and un-classed forests.	<p>Sequestration of carbon through 2,000 ha of dryland forest area to be planted with teak under a taungya agroforestry system.</p> <p><u>Short-term</u> C storage benefits accruing project years 3-5: 3,306 tC or 12,122 tCO₂e <u>Long-term</u>: years 6-20 (post-project): 37,193 tC or 136,372 tCO₂e</p>

45. Incremental GEF resources will support the mainstreaming of SFM and SLM objectives into productive forest and cropland management practices. The proposed project will provide an opportunity for a major scaling up and strengthening of CF management techniques to address capacity constraints within the forestry sector. GEF's incremental investment will strengthen participatory management of forest resources to mitigate CC. GEF funding will enable stakeholders to improve the application of good forest management planning and good silvicultural practices. It will enable community forest groups to strengthen their tenure rights over community forests and strengthen the management of community forests through improved management of grazing and wood collecting in order to enable natural regeneration, application of traditional taungya agro-forestry practices. Consequently, GEF funding will enable the FD and community foresters to avoid emissions caused by degradation, increase sequestration through enhanced biomass and improve the productivity of forests. GEF's incremental investment will also enable farmers to apply improved cropland management practices designed to increase productivity, reduce pollution, and avoid GHG emissions over baseline cropland management levels.

46. The project will introduce participatory SFM and SLM through four interlinked components: (i) Strengthening policy and regulatory frameworks for forest/cropland management (ii & iii) Models for applying improved cropland management forest management and enhancing carbon storage (iv) Knowledge development, capacity building, and monitoring. These components are summarized in more detail below and will be elaborated fully under the PPG.

Component 1: Strengthened Governance (Institutional, Policy, and Law) Framework.

47. Under Component 1, GEF support will enable stakeholders to strengthen the governance framework for sustainable land management (SLM) and sustainable forest management (SFM). The foundational institutional support needed for small holders is land tenure guarantees. GEF resources will enable stakeholders (farmers, DoA, FD, SLRD, civil society) to design and implement integrated policy-practice initiatives that promote secure land tenure and build a foundation for SFM and SLM (as well as food security). This would include elaborating:

- A legal framework that formalizes customary land tenure patterns and is based on customary institutions for decision making.
- A flexible land-use policy framework that recognizes that farmers often use both forest and agricultural land, sometimes in parallel and sometimes in rotation.

-
- Equitable tenure guarantees that benefit men and women equally.

48. Project resources will enable stakeholders to improve agricultural policy, legal and regulatory frameworks to support the adoption of SLM and SFM principles. Work under this component will include the development of a package of modifications in land and forest regulations, policies, and standards for ICIM/CSA and SFM, including: i) by-laws with specific CSA and healthy forest criteria, management standards for SFM and guidelines on monitoring and enforcement ii) strengthened more flexible land-use planning policies enable use of agriculture and forest lands; and iii) more streamlined process for registering taungya and community forest lands.

49. GEF and co-financing resources will enable the piloting of improved land-use policy and planning to support agro-ecosystem-based planning and management across key sectors such as agriculture and forestry to encourage synergies rather than conflict (*i.e.* taungya and teak), reducing pressure for landless small holders to convert more forestland. District and township level Land Use Advisory Committees will be established in order to pilot new regulations for land-use planning and demonstrate strengthened governance across sectors at the local level. This work will enable the piloting of digital land-use mapping process in priority districts include new, more flexible categories for customary use of forest/agriculture and reconciles forest & agriculture land boundaries. New benefit sharing regulations and guidelines will also be elaborated and adopted by FD with the support of work under this component. This will allow for greater utilisation rights for FUGs to improve incentives for enhanced forest stewardship.

50. In addition the project will work with FD and other stakeholders (government, academics, NGOs and civil society) to refine and strengthen the Community Forestry Instruction. Strengthened SFM mainstreaming regulations and by-laws will enable the improved management of over 13,440,000 hectares of FD-managed forest over the long-term (existing closed forest). GEF resources will enable stakeholders to elaborate improvements to the 30-yr Forestry Master Plan and the Forest Law and policy to strengthen SFM and to provide for a more explicit and larger role for community forestry (CF) in forest management and forest conservation. This will include strengthening the Community Forestry Instructions to reflect the strengthened legal basis for CF in Myanmar and to reflect the importance of CF working effectively with the FD and of strengthening the capacity of the FD in this regard.

51. Similarly, GEF resources will enable stakeholders to integrate ICIM/CSA in to the Five-Year Short Term plan for Agriculture by setting targets for number of farmers enabled to adopt ICIM/CSA practices and approaches, including the elaboration of clear guidelines to this effect. This will support and enable the scaling up work under Component 2 that will be so critical to achieving greater global and national benefits. Incentive and finance mechanisms will also be key to encourage farmers to adopt ICIM/CSA management practices and community foresters to adopt SLM/SFM practices that enhance carbon pools in restored forestlands. This could include appropriate agro-environmental policies to provide incentives for SLM/SFM and CSA at local levels in Myanmar and will build upon the work being initiated by the UN REDD Programme and highlighting the value of agro-ecosystem services.

52. Training and capacity building will be an important part of this project's work in each of the project's main components. A full capacity needs assessment will be conducted during full project preparation and a training program developed to be implemented under the full project. Training would be provided at the institutional and individual levels to strengthen institutional and individual level capacity across sectors to collaborate and manage agricultural landscapes and to strengthen forest inventory practices. Component 1 of the GEF intervention will ensure that the weaknesses of the existing institutional framework are alleviated thus creating an enabling environment for sustainable forest management.

Component 2: Climate Smart Agriculture (CSA) and Improved Cropland Management (ICIM) Practices Demonstrated by Farmers in Priority Agro-Ecosystems of Myanmar.

53. Under Component 2, GEF incremental investments will focus on enabling farmers to develop and adopt CSA/ICIM practices to improve productivity, sequester carbon and to reduce and avoid GHG emissions.

54. GHG emissions can be reduced by using a range of different methods available in the CSA/ICIM toolkit. These same practices can also reduce soil erosion and increase soil water infiltration and retention. Different methods are highlighted as examples under each of the three scenarios. GEF and co-financing resources will build the capacity of farmers and MoAI staff to apply ICIM/CSA practices across an increasing number of hectares over time. In the short term, the project will enable farmers to make this change across 64,000 ha, in different ways as outlined in the three scenarios below. Each scenario will be developed in detail during the PPG. Under each scenario farmers will generate specific carbon benefits in the form of avoided GHG emissions and sequestered soil carbon.

55. On a per hectare basis, the emissions reduction potential for ICIM is small, especially in Myanmar where farmers currently do not use lots of fertilizer. Meaningful GEB will come when improved practices are adopted by farmers on large scale – across hundreds of thousands of hectares, generating very high Carbon and land condition benefits over the long-term, in addition to improved productivity, resilience and food security. These are the main reasons for CCM in agriculture. GEF resources, working to complement government funded baseline

programs, will be used to catalyze the shift to ICIM/CSA by enabling farmers to demonstrate it across 60,000 hectares under all three Scenarios below. GEF funds will also catalyze the scaling up of such practices under Component 4, through such activities as peer-to-peer farmer training.

56. Under this and other scenarios, project resources will form DoA-farmer “Early Adopter Teams” or EAT. Each EAT will consider the range of options for ICIM/CSA relevant to their respective agro-ecosystems and choose a specific program for piloting and adoption. Specific training programmes for farmers already developed by FAO and other partners such as IRRI will be utilized where appropriate to increase cost and time-effectiveness.

57. Scenario 1: Sustainable Rice Intensification. Approximately 8 million ha of land is cultivated under rice in Myanmar each year. *Improved water management*: The waterlogged and warm soils of rice paddies make this production system a large emitter of methane. Inefficient water management (continuously flooded) of most of Myanmar’s rice paddies results in almost 50% more methane emissions than improved water management. Intermittently flooded rice paddy using water-saving ‘multiple aeration’ methods such as AWD⁹ potentially reduces methane emissions by 48% compared to continuous flooding of rice fields according to the revised IPCC methodology¹⁰. Ample adoption of AWD facilitates an optimum use of irrigation water, so that the cropping intensity can be increased from ca. 119% to ca. 160% (related to the maximum of 200% in these double-cropping systems).

58. *Integrated Plant Nutrient Management (IPNM)*: Research on rice cultivation has identified that emissions mainly occur in the few months of the year when the ground is fully waterlogged. A more integrated approach to rice paddy irrigation and improved fertilizer use efficiency will be introduced to reduce methane emissions from paddies. This will include piloting urea deep placement (UDP) technology where urea in the form of super granules or small briquettes is placed under the soil near the roots and out of the floodwater where it is susceptible to loss – a practice that has shown 50-60% savings in urea use and yield increases of ~1 ton/ha. Nutrient management will also include incorporating rice straw that is now burned back into the soil.

59. Scenario 2: Improved Annuals. Approximately 6 million ha of land is cultivated under annual cropping in Myanmar each year. The practices utilized by farmers (e.g. cropping patterns, planting dates and farm management techniques) determine the extent to which the land will increase soil carbon and resist erosion or the opposite. Under scenario 2, GEF resources will enable EATs in dryland and upland areas to elaborate and implement specific *Improved Agronomic Practices* for annual crops. The type of practices that the EATs will be enabled to consider include: *Soil fertility management*. Cover crops used to increase soil fertility are referred to as “green manure” and are used to manage a range of soil macronutrients and micronutrients such as nitrogen, which is beneficial for productivity as nitrogen is often the most limiting nutrient in crop production. Cover crops can be grown for a specific period and then plowed under before reaching full maturity in order to improve soil fertility and quality or can be left in the ground as permanent cover reducing erosion, increasing water infiltration, and precluding weed growth. *Multiple cropping* -- the practice of growing two or more crops in the same space during a single growing season -- can part of a farmer’s IPNM strategy including the use of legumes in *intercropping*, planting an additional crop in the spaces available between the main crop. *Crop rotation* replenishes nitrogen through the use of green manure in sequence with cereals and other crops and can also improve soil structure and fertility by alternating deep-rooted and shallow-rooted plants. Because crop rotation also mitigates the build-up of pathogens and pests it can be an important contributor to integrated pest management (IPM).

60. Another important tool in the ICIM/CSA toolbox is *improved crop varieties* including new salinity, drought and submergence tolerant varieties of rice and other crops. Early adopter teams will have access to such tools as they develop their own ICIM/CSA plans for implementation. *Water management*: where relevant, EATs will be enabled to improve water management and cropping conditions through better terrace design, contouring, water harvesting structures, tied ridge system, riverbank protection, drainage, and small-scale irrigation. The project will enable landless rural farmers to develop small irrigation systems to improve productivity in lands degraded by slash and burn. In dryland and upland pulse farming, *site-specific nutrient management* (SSNM) practices will also be introduced and promoted. This will include enhanced organic fertilization through mulching, manure management and composting in combination with inorganic fertilizers. DoA extension agents will be trained to calculate the adequate amount of fertilizer through proper soil fertility analysis. Existing institutional and human capacity for soil testing will be improved and strengthened for practical sustainable use.

61. *Tillage and residue management practices*. A key change in cropland management practices to be instituted under this scenario will be to enable farmers to stop burning crop residue and to manage the residue instead. Systems that retain crop residues increase soil C because these residues are the precursors of soil organic matter. For example, conservation tillage that leaves at least 30% of the ground covered by crop residue during seedbed preparation increases soil organic C content when land is converted from conventional plough-based use. Minimizing soil

⁹ Alternate-Wetting and Drying (AWD) developed by the International Rice Research Institute (IRRI)

¹⁰ IPCC 2006, National Guidelines for Greenhouse Gas Inventories

disturbance and increasing the surface retention of crop residues will decrease soil C losses through enhanced decomposition and reduced erosion. Reduced or minimum/zero tillage with permanent soil cover (mulching) and crop rotation enhance crop productivity while sustaining and improving natural resource potentials, particularly soil fertility, water availability and soil biodiversity while sequestering soil C.

62. **Scenario 3: Land-use change to perennials.** Under this scenario, project resources will provide the technical capacity to enable early adopter teams in dryland areas to incorporate agroforestry into landscapes now planted in annual crops. Considering its wide applicability, agroforestry has a high potential to mitigate CC through carbon sequestration in soil and biomass (IPCC 2000). Average C storage by agroforestry system is estimated at 21-50 Megagrams C/ha/year in sub-humid and humid regions respectively (Schroeder 1994). Also importantly to farmers, agroforestry contributes to food security by providing multiple products and benefits to farmers such as food, fodder and shade for livestock, timber and renewable wood energy. It also supports enhanced agricultural production by improving soil conservation, soil water holding capacity, soil organic matter, soil fertility, and other ecosystem services. Other incentives will also be important to encourage farmers to make such land-use changes. Perennial cropping (e.g. tea, spice, fruit trees) can provide significant income to farmers, while increasing trees and permanent soil cover in a landscape and production system. This work will draw upon the existing infrastructure of FD-supported tree nurseries in Myanmar as well as DoA supported township level agriculture extension offices and research farms to ensure seedlings and seeds of various species are available.

Three Scenarios for improved cropland management	Column 1: Gross fluxes "Without Project" (tCO ₂ eq/ha)		Column 2: Gross fluxes "With Project" (tCO ₂ eq/ha)		Column 3: Long-term benefit (tCO ₂ eq/ha)		tCO ₂ eq/ha/ year	Short term 4 yr benefit (tCO ₂ eq/ha)
Irrigated Rice	112	source ¹¹	89	source	-23	sink	-1.2	-4.9
Annual Crops	12	source	-46	sink ¹²	-58	sink	-3.1	-12.2
Agroforestry/Perennial Crops	0	neither	-617	sink	-617	sink	-32.5	-129.9

Note: Benefits claimed for four (short term) + 15 years post project (long-term). The numbers in columns 1-3 are for 19 years.

Component 3: Models for sustainable forest management and enhancement of carbon storage potential demonstrated in community forests within the project's pilot areas.

63. Under Component 3, project resources will form Forest user group Early Adopter Teams or FEAT to demonstrate improved sustainable forest management across four different scenarios to be developed in detail during the PPG and which are outlined below. Specific training programmes for foresters and community foresters already developed by FAO and other partners will be utilized where appropriate to increase cost and time-effectiveness. GEF incremental investments will focus on enabling stakeholder to demonstrate credible, measureable improvements in forest condition and reductions in pressure on forest resources, particularly agriculture expansion.

64. **Scenario 1: Improved management of State Forest by FD.** *The non-project scenario* is unsustainable production forest management in 50,000 ha of FD-managed forest with an average density 80 m³/ha and an average net degradation of 5m³/ha/yr. State forestland (closed forest) is under-going slow and steady degradation and loss of forest cover due to inadequate planning and poor harvesting practices in closed forests. *The project scenario* is management under the MSS with 0 m³/ha net gain/loss by year 4 of the project. Degradation will be halted and a balance between extraction and recuperation will be maintained beyond the project period. GEF incremental investments will strengthen the capacity of the Forest Department (FD) to develop and apply multi-functional forest management plans across 50,000 ha of closed forest, avoiding emissions of 375,750 tC over years 3-5 of the project. Though the FD officially adheres to the MSS in all production forest areas, many districts do not implement all provisions of the system effectively. This results in the continuous and progressive degradation of many state-managed forest areas. Among the key direct causes of this degradation are management plans based on incomplete or poorly-conducted inventories and incomplete knowledge of the MSS. When timber is harvested, basic principles of felling technique and extraction are sometimes not applied, leading to damage to the surrounding ecosystem. Local communities and other stakeholders continue to extract timber and forest products on an ad hoc basis, because their needs are not acknowledged, and therefore not incorporated, in the forest management planning process. Forestry officials responsible for development of plans often have incomplete knowledge of the multi-purpose nature of forest management, concentrating narrowly on production objectives. Furthermore, resources for training institutions and for the materials and infrastructure required for forest management and protection are growing ever more limited. The project will strengthen SFM in forestlands in the pilot areas by introducing new, multi-functional ecosystem-based forest management and by strengthening the participatory nature of forest planning and management. Project resources will introduce improved multi-functional management in the pilot areas, by enabling stakeholders to conduct

¹¹ Source = emissions

¹² Sink = avoided emissions or sequestration

ecosystem-oriented targeted forest survey/inventories to inform SFM planning and implementation. The project will also develop and implement capacity building packages for MSS, SFM, forest inventory and planning, incorporate local needs assessments into management plans and enhance the ability of local communities to influence forest management planning and hold forestry officials to account for the implementation of the plans.

65. Scenario 2: Community forests: reduced degradation. *The non-project scenario* is continued degradation of 4,000 ha of FD-managed and/or community-managed forests which are already severely degraded, mainly at the boundary between closed forest area and agricultural land. This degradation occurs due to shifting cultivation and/or unsustainable extraction of fuelwood and minor forest products. The average density of these forests is 30 m³/ha, and loss of carbon stocks through degradation averages 2m³/ha/yr.

66. The project scenario is sustainable forest management by communities, with a net gain of 1m³/ha/yr by year 4 of the project and, in the long-term, recovery of the forests to a density of 100 m³/ha. GEF investment will enable stakeholders to focus on demonstrating sustainable community-based forest management across 4,000 ha of forests at the boundary between closed forest area and agricultural land, which is currently suffering sustained and continuous degradation. These forests are under extreme pressure from local communities' demands for forest products and from shifting agriculture practices, which become more serious as population density has increased and the productivity of adjacent agricultural land fails to improve. Scenario 2 will reduce forest degradation and begin to reverse it, by effecting the handover of these areas to local communities and by assisting these communities in the development and implementation of SFM plans. The capacities of local communities will be strengthened through training in forest inventory, preparation and implementation of forest management plans and business plans; silvicultural techniques for rehabilitation of degraded forests, fire management and development of income generating activities using Non-Timber Forest Products (NTFPs). These activities will be supplemented by interventions designed to reduce the pressure on forests, for example through the introduction of community-managed grazing restrictions and stall feeding systems for livestock, on-farm agroforestry and fuel-efficient stoves. In order to facilitate this activity, the project will work with the FD in the ongoing review of forest policy and the Community Forestry Instruction (CFI), in order to expand its application from plantations on barren land to areas which still include viable forest cover.

67. Scenario 3: Community forests: reduced deforestation. *The non-project scenario* is conversion of 4,000 ha of MOAI-managed land which is currently under forest cover (unclassed forest) to agricultural land. The average density of these forests is 30 m³/ha. *The project scenario* is sustainable forest management by communities, with a net gain of 1m³/ha/yr by year 4 of the project and, in the long-term, recovery of the forests to a density of 100 m³/ha.

68. Scenarios 2 and 3 have essentially the same long-term outcome, as defined by the project scenario. However, in accordance with the definitions of activities under REDD+, as defined in the Cancun Agreements under UNFCCC, Scenario 3 constitutes reduced deforestation (not degradation, as in scenario 2) because the non-project scenario entails conversion from forest to non-forest land. This conversion is a consequence of the land's status as MOAI-managed. MOAI's strategy is to maximise the productive capacity of the land under its jurisdiction, including that which is currently under forest cover. Such land may account for 30-40% of forest area in Myanmar and is termed "unclassed forest" by the FD because it is not within their mandate to classify or manage these forests. The strategies employed within Scenario 3 are similar to those in Scenario 2; handover of forest management to local communities, capacity building and community-based SFM, complemented by interventions to reduce demand for forest products. However, the project must work with both the MOAI and FD jointly to effect the handover of land to local communities under Scenario 3.

69. Scenario 4: Community forest plantations. *The non-project scenario* is management of 2,000 ha of non-forest land, in the dry zone, under FD control, as agricultural land with 1 crop every 2 years. *The project scenario* is teak plantation (long rotation of ≥ 25 years) under a taungya system, with net growth rate of 4m³/ha by year 3 and 6m³/ha by year 5. Long-term density of 160m³/ha.

70. GEF investment will promote expansion of community forestry plantations on barren lands currently under the jurisdiction of the FD, through the taungya system. These lands are currently marginally productive agricultural land with, on average, one crop every two years. No local communities or individuals have secure tenure over these lands, although some have been utilized as agricultural land for several decades. The current users of the land, therefore, are vulnerable to their use being deemed illegal. The taungya system, developed in Myanmar during the 19th century, gives local households and communities rights to use the land for crop production in return for planting and providing aftercare to teak seedlings on the same land. After 4-5 years, when canopy closure inhibits further use for agricultural products, the household or community is granted another plot of land. The communities are also entitled to a share in the revenue from sale of the timber when harvested. The project will facilitate agreements between the FD and local communities for establishment of teak plantations under the taungya system and will support the process of handover of these plantations as community forests.

Component 4. Knowledge Management, Training and Scaling up of SFM/ICIM/CSA Practices.

71. Under this component, GEF resources will support knowledge management, training, and scaling up of SLM/SFM and ICIM/CSA practices. Stakeholders will record lessons learned and capture good practice and elaborate cutting-edge training modules to train MoAI and farmers & FD and FUGs, to deploy and transfer innovative low-carbon cropland and forest management practices, including improved forest inventory practices that incorporate carbon and other forest ecosystem services. Stakeholders will develop practical, “how-to” guidelines for use by farmers and community foresters based upon this material. The project will enable stakeholders at national, regional and local level to have access to improved knowledge and data to manage sustainably croplands and forest resources by developing new mechanisms for effective learning, systematic long-term approaches to capacity building, and by disseminating information on ICIM/CSA & SFM practices. A working on the long-term financing for SLM/SFM will be formed drawing upon existing stakeholder fora and key partners in related areas (e.g. REDD and agriculture) to elaborate clear and practical steps to support SLM/SFM.

72. This component would build on this good practice enable the Forest Department to scale up improved SFM management planning across all of Myanmar’s close forest areas. The technical capacity of national professionals will be upgraded through on-the-job training with world-class training professionals in the field and in the classroom. Cross group study tours to different FUG sites, peer-to-peer training such as farmer-farmer and FUG meetings will be enabled to exchange experiences and good practice among stakeholders. Lessons learned from these experiences and field site implementation will be used to develop training modules for replication and scaling up. The project will also help to establish an active FUG associations and learning network.

73. The project will support targeted education and awareness campaigns focused on different audiences (government agencies, local administrations, user groups, general public) to promote the benefits of ecologically-based forest management. Information from specific studies will feed into these campaigns, including on the value of ecosystem services from healthy agro-ecosystems. The project would support a pilot study on the valuation of ecosystem services at a key site. An emphasis will be made on enabling Myanmar institutions to form partnerships with research and academic institutions worldwide on integrated and SFM and ICIM/CSA. Cost effective FUG-friendly methods of SFM, silviculture and regeneration will be promoted. This knowledge will be systematically integrated in all relevant project activities to improve efficiency and sustainability and it will be widely disseminated and made available to non-project stakeholders through public awareness campaigns, dissemination of guidelines and workshops at regional and local levels.

74. Component 4 of the GEF intervention will be filling important capacity, knowledge and awareness gaps that are required to support SFM and ICIM/CSA. A monitoring and evaluation system will also be established to monitor project progress and impact.

B.3. DESCRIBE THE SOCIOECONOMIC BENEFITS TO BE DELIVERED BY THE PROJECT AT THE NATIONAL AND LOCAL LEVELS, INCLUDING CONSIDERATION OF GENDER DIMENSIONS, AND HOW THESE WILL SUPPORT THE ACHIEVEMENT OF GLOBAL ENVIRONMENT BENEFITS(GEF TRUST FUND) OR ADAPTATION BENEFITS (LDCF/SCCF). FOR BACKGROUND, READ “[MAINSTREAMING GENDER AT THE GEF.](#)”:

75. Seventy percent of the Myanmar’s 58 million people are rural and are mainly engaged in agriculture sectors for their livelihood. The majority of farmers are small-scale landholders, with the average size of land holding being approximately 5.6 acres (2.3 hectares). This is especially true for poor communities including Myanmar’s many ethnic minorities and tribal groups. Myanmar is an ethnically diverse country with 135 distinct ethnic groups recognized by the government. Tribal groups and ethnic minority groups comprise some of the most forest dependent communities who will ultimately benefit from a more community-based approach to agro-ecosystem management.

76. Declining forest cover and degraded land contribute to rural food security problems and present challenges for long-term community development and poverty alleviation. Ultimately, forest and land degradation decreases the ability of people to develop economically over the long term. It is estimated that approximately 26,800 households from ~190 villages with a high percentage of landless and marginal/small holder farmers will benefit directly from the proposed project. Improved cropland management is designed to increase productivity, increasing food security and farm incomes. Small holder famers will benefit from the project through additional investments in productive capital (skills, inputs, tools) necessary to improve cropland and forestland management and the natural capital that will be conserved and restored as a result, i.e. environmental services from healthy forests.

77. The project’s work to strengthen community-based forestry will help to diversity rural livelihoods, and meeting local and national demands for fuel wood and timber products while at the same time maintaining healthy and productive forest ecosystems. Initial stakeholder consultations indicate that in some forest dependent communities, up to 80% of income is derived from illegal forest resource use, suggesting that there is room for more formal involvement of local people in forest product value realization, including timber. Local benefits will include financial

benefits for FUGs from forest products and livelihoods associated with forest management and sustainable use, social capital formation among rural communities. A detailed socio-economic assessment and analysis will be conducted during the PPG, which will inform the project's design, including of the value of forest products realized currently by local groups and the potential for increasing this.

78. The gender dimension. Rural women in Myanmar are key drivers of agriculture productivity and forest resource use and management, performing at least 80% of the agriculture and livestock work. And yet, rural women often lack access to land, resource entitlements and inputs such as credit and technology and extension services. Customary practices often restrict women's ability to own or operate land, the critical asset for households that depend on agriculture. GEF resources, in helping to strengthen and enable improved community based cropland and forest management, will seek to expand both economic empowerment and political participation of rural women through its work to pilot new local institutions for improved land and resource use management (e.g. LUAC) and by ensuring women are active participants in FUGs and have equal access to productive resources such as agricultural inputs, finance, extension services and technology/extension services. Project efforts will seek to strengthen rural women's self-confidence and capacity to take on leadership roles, while working with men to champion and support change through removing gender-discriminatory norms and attitudes. The project's work to strengthen governance framework for SFM and SLM will catalyze policy, legal, budgetary and land tenure reforms in support of rural women.

B.4 INDICATE RISKS, INCLUDING CLIMATE CHANGE RISKS THAT MIGHT PREVENT THE PROJECT OBJECTIVES FROM BEING ACHIEVED, AND IF POSSIBLE, PROPOSE MEASURES THAT ADDRESS THESE RISKS TO BE FURTHER DEVELOPED DURING THE PROJECT DESIGN:

79. This project presents moderate risks in an overall atmosphere of increased openness and optimism for change. It will build on a sound foundation and established approach of community-based forest management and a trend to increase local control of farmers over what they plant and how they manage their fields. A number of potential risks have been considered:

Risk	Rating	Mitigation measures
Political pressure may continue or increase to log forests at unsustainable rates going forward, maintaining or increasing forest degradation rates.	Medium	The project design emphasizes improving governance, particularly local participation and enhancing transparency, in forest management. The project will also work with partners such as UN-REDD to highlight the benefits Myanmar may have from improved and enhanced SFM. Trends in Myanmar for teak is to move more and more to plantation production, which may reduce pressure to log closed forest unsustainably.
The capacity at local FUG level to support SFM is just emerging and may be difficult to operationalize effectively.	Medium	The project will apply a systematic capacity building program for FUGs that will be supported first by strengthened tenure for FUG work and secondly by new partnerships among Government, civil society, and the international development community to initiative and sustain FUG capacity building.
Increased frequency or regularity of temperature extremes caused by CC may trigger shifts and movement in forest types across agro-ecosystems and/or disease and insect infestations.	Uncertain	The project will instill an approach to SFM that is underlain by fundamental scientific principles and participatory methods and mechanisms that will enable stakeholders to modify SFM approaches as needed. Local level monitoring is also a key part of the project's work, which will enable stakeholders to apply adaptive management in response to changes over time. Well-managed forest stands will also be healthier and more resilient to climate change. And finally, a more flexible land use policy approach to "agriculture" and "forest" land will only help stakeholders respond to climate driven shifts.
There may not be sufficient incentive for communities to form and sustain FUGs.	Medium	The project will be designed to build on the positive momentum in Myanmar for change, particularly with respect to strengthening land tenure security and the community forestry policies and incentives in order to encourage local stakeholders to form FUGs and to practice SFM. This will include changes that will allow FUGs to benefit from commercially valuable timber on CF lands.
Government financing constraints may limit investments in SFM, and indeed place more pressure on forest resources.	Medium	The project will be designed to uncover and secure the full value of the types of services from healthy forest ecosystems and sustainable forest management, both from ecosystem services perspective and from the REDD+ perspective, shedding new light on the benefits of SFM.

B.5 IDENTIFY KEY STAKEHOLDERS INVOLVED IN THE PROJECT INCLUDING THE PRIVATE SECTOR, NGOS, CIVIL SOCIETY ORGANIZATIONS, LOCAL AND INDIGENOUS COMMUNITIES, AND THEIR RESPECTIVE ROLES:

Stakeholder Institutions	Relevant Roles/Responsibilities
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Ministry of Agriculture and Irrigation (MoAI)	The project will be executed through the DoA, which will play the coordinating role, in close coordination with the FD. The DoA will be the key actor in enabling farmers to adopt CSA ICIM. The DoA will chair the project steering committee, which will include the FD as well as representatives of civil society.
Department of Agriculture	
Department of Land Settlement and Records	Maintains land ownership/tax records & plays a key role in land tenure issues.
Ministry of Environmental Conservation and Forestry (MoECF)	The FD will be the key partner on all SFM related work and will institutionalize participatory forest management as national policy and scale up SFM activities. Will be key adopters of SFM practices at the national, state, and local level and key beneficiaries of training and technical assistance.
Forest Department (FD)	
Dry Zone Greening Department (DZDG)	Will be an important project partner in dry zone areas for ICIM/CSA, particularly the toungya demonstrations.
Farmers and Forest user groups	Will be key adopters of ICIM/CSA and SFM practices at the local level and key beneficiaries of training and technical assistance. This will include ethnic minority and tribal groups where possible.
RECOFTC – Center for People and Forests	An NGO based in Bangkok, RECOFTC could play an important role in strengthening local community capacity under the project in SFM.
Environmental Technical Working Group (ET)	Formed by UN agencies, local and international NGOs. It provides a forum for 1) networking and sharing of information environmental issues in Myanmar; 2) knowledge sharing on technical issues in the environment field; 3) policy advice and public-private partnerships; 4) discussion of issues related to multi-lateral environmental agreements such as the UNFCCC and the Kyoto Protocol. Could provide important channels for stakeholder engagement with government and each other on pressing environmental issues of the day.
Food Security Working Group (FSWG) & Land Core Group (LCG)	The FSWG and LCG are key civil society initiatives with strong UN and NGO participation. They will play an important role in this project's work. These roles will be detailed during the full project preparation process under the PPG.

B.6 OUTLINE THE COORDINATION WITH OTHER RELATED INITIATIVES:

80. The proposed project will coordinate with and through a range of relevant initiatives and groups in Myanmar, including: (1) JICA's investments in mangrove forest health in coastal areas and improved water management in dryland areas. (2) National REDD+ Readiness process of Myanmar (or phase 1 of a national REDD+ programme), which will be financed by the Government of Norway with the technical support of UN-REDD, RECOFTC and other organisations, and implemented by the MoECF. In order for the project to verifiably achieve its objectives it will depend on the key components under the REDD+ Readiness process, including: i) Developing a national management structure for REDD+, ii) Establishment of stakeholder consultation processes; iii) Identification of REDD+ strategies and planning approaches; iv) Implementation framework for REDD+, including legal, institutional, capacity building and development of a system of safeguards; v) Establishment of a national reference level (RL) or reference emission level (REL) for REDD+ and vi) Development of a National Forest Monitoring system and Measurement, Reporting and Verification (MRV) system for REDD+. The progress of the project will be dependent to a large extent on the establishment of appropriate frame conditions that the readiness process will put in place. The project will complement the Readiness process by developing and piloting demonstration activities, which may then be scaled up to the national level during phase 2 of a national REDD+ programme. This "Readiness" project, which has yet to be finalized and funded, may very well become part of this GEF project's "baseline project" at the CEO endorsement stage. (3) The UN Development Programme's (UNDP) current and emerging portfolio of sustainable development and environment projects with the MoECF. This includes a large Adaptation Fund (AF) project entitled *Addressing Climate Change Risks on Water resources and Food Security in the Dry Zone of Myanmar* and a small UNDP funded REDD+ initiative in Kachin State focussing increasing youth participation in SFM. This project will coordinate with MoECF and UNDP on these projects plus other emerging UNDP initiatives going forward in order to build synergies and avoid duplication. Indeed, this coordination and communication has already begun; for example, FAO is member of the technical advisory group for AF project. (4) Lessons and good practice will be drawn from a range of existing work on the gender dimension, especially that of the UN Women/IFAD/WFP/FAO project entitled *Accelerating Progress toward the Economic Empowerment of Rural Women*. The UN Country Team in Myanmar jointly supports the Government across the four strategic priority areas as laid out in the UN Strategic Framework document, among the priority issues being agriculture development, addressing climate change, and enabling good governance. This UNCT framework will provide a valuable mechanism for coordination.

C. DESCRIBE YOUR AGENCY'S COMPARATIVE ADVANTAGE TO IMPLEMENT THIS PROJECT:

81. Drawing from across FAO's organizational capacity, FAO-Myanmar is bringing to bear significant technical and policy level expertise to assist Myanmar in addressing priority global environmental issues nearly all of which relate to FAO's core areas of expertise and work, including agriculture, forestry, fisheries, and so on.

The mandate of the Forestry Department of FAO is to support member countries to implement sustainable forest management by providing policy advice, technical knowledge and reliable information. The FAO Forestry Department employs about 150 staff, including about 10 staff working in the Asia-Pacific region. FAO's rich and unique experience worldwide designing and implementing with country partners projects to build institutional capacities for SFM and REDD+ through FAO's central role in the UN-REDD program. In Myanmar, FAO has been a key player in the Myanmar forestry sector for decades. The experience FAO has gained in working with Myanmar partners during this long history is an important element in FAO's comparative advantage to implement this project, as the proposed GEF project will build on this foundation of lessons learned and good practice to scale up SFM nationally. FAO focuses much of its country support and field activities on improving agricultural production through sustainable management of natural resources, while addressing new challenges such as CC. The concept of CSA has emerged from FAO's expertise and long term experience and can be defined by a set of policies and practices promoting mitigating CC through C sequestration and reduced GHG emissions in addition to increased agricultural production, and agro-ecosystems and livelihood resilience. Many programmes have been developed under the umbrella of CSA and this knowledge and expertise will be brought to bear in support of this GEF incremental investment. FAO is a well-known source of knowledge and a technical expertise provided in improved management practices such as conservation agriculture, agroforestry, water management, integrated livestock management, and restoration of degraded lands¹³. FAO's Ex-Act software to monitor the C benefits will be a useful supporting tool.

C.1 INDICATE THE CO-FINANCING AMOUNT THE AGENCY IS BRINGING TO THE PROJECT:

82. FAO will also mobilize resources from other bilateral and multi-lateral donors as co-financing for the project as reflected in the close cooperation evident among Government of Myanmar and FAO together with the growing international community of development agencies increasing their presence and levels of investment in Myanmar. FAO will also bring to bear co-funding from its own programs and resources in SFM and ICIM/CSA and tenure issues in the order of US\$500,000.

C.2. HOW DOES THE PROJECT FIT INTO THE GEF AGENCY'S PROGRAM AND STAFF CAPACITY IN THE COUNTRY TO FOLLOW UP PROJECT IMPLEMENTATION:

83. The project is in line with FAO's new Strategic Objectives under refinement, particularly SO-2: Increase production in agriculture in an economic, social, and environmentally sustainable manner. The project also fits the priority elements of the Country Programme Framework (CPF) outlining the main areas of cooperation and partnership between FAO and the Republic of the Union of Myanmar. In particular, the project supports Priority Outcomes: #1: Increased agricultural production; #3: Sustainable management of natural resources and the environment; #4: Human resource development and capacity building.

84. FAO will be responsible for technical support and overall management and financial supervision of project implementation through FAO's Myanmar office, led by the FAO Assistant Representative for Programs (a senior agriculture professional) with day-to-day supervision resting with the Programme Officer for FAO-Myanmar. The primary executing partner will be the FD of Myanmar, which will enter a Letter of Agreement with FAO. FD will be responsible for day-to-day project coordination, execution of project activities and day-to-day monitoring of project progress. TCI is the lead technical unit on this project, coordinating project support and technical supervision across "the House" from FAO's forestry and natural resource management groups. The FAO RAP in Bangkok will provide critical technical support through its depth of expertise in forestry, REDD, and sustainable land use.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT AND GEF AGENCY

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):

(Please attach the [country endorsement letter\(s\)](#) or [regional endorsement letter\(s\)](#) with this template).

NAME	POSITION	MINISTRY	DATE
Hla Maung Thein	Director, Planning and Statistics Department	Ministry of Environmental Conservation and Forestry	AUGUST 30 2012

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF policies and procedures and meets the GEF/LDCF/SCCF criteria for project identification and preparation.

¹³ E.g. the LADA project's methodologies and tools to assess the state of land resources, and related drivers and impacts of land degradation in a way to build sustainable land management and agriculture investment plans

Agency Coordinator, Agency name	Signature	Date (Month, day, year)	Project Contact Person	Telephone	Email Address
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