



REQUEST FOR CEO ENDORSEMENT/APPROVAL

PROJECT TYPE: Full-sized Project

THE GEF TRUST FUND

Submission Date: April 28, 2011

Resubmission Date **October 7, 2011**

PART I: PROJECT INFORMATION

GEFSEC PROJECT ID: 3000

GEF AGENCY PROJECT ID: PIMS 3091

COUNTRY: Tanzania

PROJECT TITLE: Sustainable Management of the Miombo Woodland Resources of Western Tanzania

GEF AGENCY: UNDP

OTHER EXECUTING PARTNER(S): GoT; IRA

GEF FOCAL AREA: BD

GEF-4 STRATEGIC PROGRAM(S): BD S02 SP 4/SP5

NAME OF PARENT PROGRAM/UMBRELLA PROJECT: SFM

A. PROJECT FRAMEWORK

Expected Calendar (mm/dd/yy)	
Milestones	Dates
Work Program (for FSPs only)	June 2009
Agency Approval date	December 2011
Implementation Start	January 2012
Mid-term Evaluation	August 2014
Project Closing Date	January 2017

Objective	To provide land users and managers with the enabling environment (policy, financial, institutional, capacity) for climate resilient SFM adoption in the miombo woodlands							
Component	Type	Expected Outcomes	Expected Outputs	GEF		Co-Fin		Total
				\$	%	\$	%	

The policy, regulatory and institutional arrangement support sustainable forest management in the miombo woodlands.	TA	<ul style="list-style-type: none"> ➤ At least 130,000 ha of productive miombo woodlands being managed in line with SFM, and another 150,000 benefiting indirectly through upscaling; ➤ Policy regulatory framework and institutional arrangements support Sustainable Forest Management; ➤ Local level governance systems support CBF/JFM and sustainable charcoal 	Output 1.1: Policy regulatory framework and institutional arrangements support Sustainable Forest Management: Output 1.2: Local level implementation of policies and bye laws improved: Output 1.3 National policy for regulating sustainable production, processing and marketing of charcoal in place:	200,000	12	1,446,000	88	1,646,000
Strengthening skills and capacities for knowledge based CBFM/JFM, integrated soil fertility management, land use planning and adaptation	TA	<ul style="list-style-type: none"> ➤ Rate of deforestation slowed by at least 20% in pilot wards (133,000 ha); ➤ Stakeholders provided with skills and institutional capacity to mainstream SFM and comply with CBFM/JFM; ➤ Use of improved tobacco curing barns increased from less than 10% to about 40% (leading to direct emissions reductions of about 1.7 million tCO₂e); ➤ At least 50% increase in number of farmers using weather information for decision making; ➤ At least 40% increase in agricultural produce for key crops as a result of improved agricultural practices; 	Output 2.1: Integrated soil fertility management improved to increase productivity and reduce shifting cultivation tendencies: Output 2.2: Joint Forest and community based forest management supported and at least 500ha of community forest being managed under this regime: Output 2.3: Use of updated weather data/information in decision making increased in the pilot wards: Output 2.4: Adoption of energy saving tobacco barns supported to reduce pressure on woodlands: Output 2.5: M&E and communications systems formulated and being used to support adaptive management	855,000 <i>(100% from CC)</i>	16	4,500,000	84	5,355,000

Adoption of Sustainable charcoal and energy switch reduce pressure on woodlands		<ul style="list-style-type: none"> ➤ At least 40% adoption of sustainable charcoal in the pilot and additional villages reduce deforestation¹; ➤ Local and regional institutional arrangement for sustainable charcoal set up; 	Output 3.1: Support to sustainable charcoal production delivered: Output 3.2: Sustainable charcoal linked to carbon finance (co-finance): Output 3.3: Institutional set up to coordinate the transformation of the charcoal industry facilitated: Output 3.4: Mitigation through improved energy switch	670,500	17	3,200,000	83	3,870,500
Markets support expansion of livelihood options and incentives for SFM	TA	<ul style="list-style-type: none"> ➤ Volume of trade in SFM/BD friendly income generating products increased by at least 50% from the currently low baseline; ➤ Access to micro finance increased from the current low of about 10% of farmers to at least 35% 	Output 4.1: High value non-timber forest products (NTFP) and agribusiness identified and developed (including markets): Output 4.2: Access to financial services increased to support adoption of agribusiness and trade in NTFPs as well as use of inputs for agriculture:	745,000	18	3,320,000	82	4,065,000
Project Management	Project managed efficiently and cost-effectively			274,500	17	1,300,666	83	1,575,166
Total				2,745,000	17	13,766,666	83	16,511,666

B. SOURCES OF CONFIRMED CO-FINANCING FOR THE PROJECT

Co-financing Source	Type	Cash	In-kind	Total
Government	GoT	4,400,000	1,500,000	5,900,000
UNDP	GEF IA	800,000		800,000
Institute of Resource Assessment	Government institution	3,500,000		3,500,000
TTTL Tobacco company	Private sector		3,566,666	3,566,666
Total co-financing		8,700,000	5,066,666	13,766,666

C. FINANCING PLAN SUMMARY FOR THE PROJECT (\$)

	Project Preparation	Project	Agency Fee	Total	<i>For comparison: GEF and Co-financing at PIF</i>
GEF Grant	200,000	2,745,000	274,500	3,219,500	3,250,000
Co-financing	180,000	13,766,666		13,946,666	9,000,000
Total	380,000	16,511,666	274,500	17,166,166	12,250,000

* Fee for PPG of \$150,000 received

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

GEF Agency	Focal Area	Country	Amounts			
			PPG	Project	Agency fee	Total
UNDP	SFM BD	Tanzania	100,000	1,890,000	199,000	2,189,000
UNDP	SFM LD	Tanzania	50,000		5,000	55,000
UNDP	SFM CC	Tanzania	50,000	855,000	90,500	995,500
Total GEF Resources			200,000	2,745,000	294,500	3,239,500

E. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:

¹ Adoption of sustainable charcoal is expected to lead to emissions reduction which will be calculated during inception and reported at MTR

<i>Component</i>	<i>Estimated staff weeks (financed by GEF)</i>	<i>GEF (\$)</i>	<i>Other sources (\$)</i>	<i>Project total (\$)</i>
Local consultants	200	148,000	300,000	448,000
International consultants	100	130,000	220,000	350,000
Total	300	278,000	520,000	798,000

F. PROJECT MANAGEMENT BUDGET/COST

Project management inputs	Estimated staff weeks	GEF (\$)	Other sources (\$)	Total (\$)
Local consultants	260 ² (865.38/wk)	225,000	645,500	870,500
Travel		31,000	50,000	81,000
Equipment and office supplies		18,500	30,000	48,500
Total		274,500	725,500	1,000,000

G. DOES THE PROJECT INCLUDE A “NON-GRANT” INSTRUMENT? no

H. DESCRIBE THE BUDGETED M & E PLAN:

- The project indicators are presented in the table below. A detailed description of the project monitoring and evaluation is provided in the UNDP Project Document (section 4 paragraph 136 onwards). In summary, the monitoring and reporting will be conducted in accordance with established UNDP and GEF procedures and will be performed by the project team and the UNDP Country Office (UNDP CO) with support from UNDP/GEF. The project indicators are provided in table 1 below. The Strategic Results Framework/Matrix presented in Annex 1 provides further details on the monitoring indicators including current baselines, targets, means of verification and assumptions. These will form the basis upon which the project's Monitoring and Evaluation system will be built. Key events of the M&E system are described in table 2. The types of reports expected from the project and a reporting schedule is provided in section 4 of the UNDP Project Document. A participatory monitoring and evaluation system will be designed under output 2.5 (Outcome 2). The M&E system will refine the indicators in table 1 and the Resource Framework as needed, and complete the baselines. It will also link the monitoring of this project to the regional Miombo Woodlands Network to ensure that lessons from the project inform adaptive management of the larger biome. This is important for tracking whether improved management in the Miombo transfer the pressure to the rain forests of the Congo basin.

Table 1: Project Indicators

Result	Indicators
Objective: To provide land users and managers with the enabling environment (policy, financial, institutional, capacity) for climate resilient SFM adoption in the miombo woodlands	<ul style="list-style-type: none"> ➤ Reduction in the rates of deforestation and forest degradation in the pilot areas (over an area of 133,400 hectares) as measured by the following: ➤ at least 25% improvement in tree density (via improved regeneration/recruitment), particularly in the CBFM/JFM areas, farmlands and patches under specific rehabilitation; ➤ at least 10% improvement in soil quality indicators such as water holding capacity, structure, soil organic matter etc.; ➤ Direct ERs of at least 1.7 million tCO₂e mitigated from adoption of improved tobacco curing barns in the pilot wards; ➤ At least 10% improvement in household welfare for a minimum of 40% of the 12,000 households in pilot wards;
Outcome 1: The policy, regulatory and institutional arrangement support sustainable forest management in the miombo woodlands.	<ul style="list-style-type: none"> ➤ At least a 50% increase in compliance with environment and NRM rules and regulations at the local level; ➤ At least 4 policies reviewed and income generation from CBFM/JFM and forestry secured through harmonization of currently contradictory policy environment in the sector policies (environment, agriculture, trade and forestry); ➤ National policies reviewed and recommendations for legalizing charcoal made; ➤ Rules and regulations for sustainable charcoal agreed at the regional level;

² This budget will support the implementation of the M&E plan outlined in table 2 (USD 165,000) and the salaries of part a Financial & Administration Officer and a driver (USD 60,000 at a cost of USD 1000 per month).

Outcome 2: Strengthening skills and capacities for knowledge based CBFM/JFM, integrated soil fertility management and land use planning	<ul style="list-style-type: none"> ➤ At least 500 ha of woodlands being managed under functional CBFM/JFM ➤ At least 50% of the technical officers and land users requiring capacity improvement have received skills (training and materials) to enhance their capacity for integrated soil fertility management, CBFM/JFM; ➤ At least 50% increase in number of farmers consistently applying 3-5 integrated soil fertility management practices; ➤ At least 25% increase in agricultural produce for key crops as a result of improved integrated soil fertility management and other agricultural practices (which increase soil fertility and soil-water use by crops); ➤ At least 50% increase in compliance with CBFM/JFM principle; ➤ Percentage of farmers using improved tobacco curing barns increased from less than 10% to about 40% (leading to direct ERs of 1.7 million tCO₂e). ➤ At least 25% increase in number of farmers using weather information for decision making (co-fin);
Outcome 3: Adoption of Sustainable charcoal and energy switch reduce pressure on woodlands	<ul style="list-style-type: none"> ➤ At least 10 charcoal associations facilitated, and adopting sustainable charcoal principles; ➤ At least 1 voluntary carbon credit buyer identified and a sale agreement signed for the purchase of credits generated by those adopting sustainable charcoal; ➤ An institution to support regional level charcoal coordination in place and functioning; ➤ At least 4 public institutions adopting methane for cooking; ➤ Sustainable charcoal adopted by at least 40% leading to reduced deforestation and ERs (to be calculated during inception).
Outcome 4: Markets support expansion of livelihood options in the miombo woodlands to reduce pressure on natural resources and raise income.	<ul style="list-style-type: none"> ➤ Volume of trade in SFM/BD friendly income generating products increased by at least 50% from the currently low baseline; ➤ At least 2 agri-processing business established and making contribution to local economic development and SFM; ➤ At least 35% increase in number of farmers accessing micro-finance and credits; ➤ Number of producer cooperatives increased from 0 to at least 3;

Table 2: Indicative M & E Work plan and corresponding Budget

M&E activity	Responsible Parties	Budget US\$ ³	Time frame
Inception Workshop	Project Coordinator, UNDP CO UNDP GEF	No Cost	Within first three months of project start up
Inception Report	Project Team UNDP CO	No Cost	Immediately following Inception Workshop
Internal Progress monitoring by Implementation team	Project Coordinator will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members	No Cost	Start, mid and end of project
Monitoring visits to check and verify Project Progress and Performance (measured on an annual basis)	Oversight by Project GEF Technical Advisor and Project Coordinator Measurements by regional field officers and local IAs	No Cost	Annually prior to APR/PIR and to the definition of annual work plans
APR/PIR	Project Team: UNDP-CO: UNDP-GEF	None	Annually
TPR and TPR report	Government Counterparts, UNDP CO, Project team, UNDP-GEF Regional Coordinating Unit	30,000	Every year, upon receipt of APR
Steering Committee Meetings	Project Coordinator, UNDP CO	20,000	Following Project IW and subsequently at least once a year
Periodic status reports	Project team	15,000	To be determined by Project team and UNDP CO
Technical reports	Project team Hired consultants as needed	10,000	To be determined by Project Team and UNDP-CO
Mid-term External Evaluation	Project team, UNDP- CO, UNDP-GEF Regional Coordinating Unit, External Consultants (i.e.	30,000	At the mid-point of project implementation.

³ Excluding project team Staff time

	evaluation team)		
Final External Evaluation	Project team, UNDP-CO, UNDP-GEF Regional Coordinating Unit External Consultants (i.e. evaluation team)	40,000	At the end of project implementation
Terminal Report	Project team, UNDP-CO External Consultant	None	At least one month before the end of the project
Lessons learned	Project team, UNDP-GEF Regional Coordinating Unit	10,000	Yearly
Audit	UNDP-CO, Project team	10,000	Yearly
Visits to field sites (UNDP staff travel costs to be charged to IA fees)	UNDP Country Office, UNDP-GEF Regional Coordinating Unit (as appropriate), Government representatives	No Cost	Yearly
TOTAL indicative COST ⁴		US\$ 165,000	

Part II: Project Justification:

A. THE ISSUE, HOW THE PROJECT SEEKS TO ADDRESS IT, AND THE EXPECTED GLOBAL ENVIRONMENTAL BENEFITS TO BE DELIVERED:

- In Tanzania, miombo woodlands constitute about 90% of all forested land, equivalent to 44.6 million ha covering 40% of Tanzania total land. The woodlands occur in two major blocks that reflect the wet and dry regional sub-types. The relatively dry miombo woodlands cover extensive areas of Shinyanga, Kigoma, Tabora, Rukwa, Mbeya and Iringa regions. The wet miombo woodlands occupy a larger and richer area in the moist west of Tanzania, bordering the Congolian Forest patches of Mahale Mountains (Nshubemuki and Mbwambo, 2007). This proposal focuses on the wetter Miombo woodlands where the main vegetation type is dominated by *Brachystegia Julbernardia* and/or *Isobertia* species interspaced with seasonally flooded plains. This part of the Miombo woodlands constitutes a significant part of the Malagarasi basin, which extends across some 9.2 million hectares, encompassing five substantial rivers and extensive riparian wetlands. The Malagarasi basin is important as it is the largest drainage system into Lake Tanganyika, a recognized center of world biodiversity. Due to the exceptional size and importance of the ecosystem, the core of the basin has been designated a site of international significance under the Ramsar Convention on Wetlands (<http://www.ramsar.org>). Further details on the woodlands are provided in section 1 of the UNDP Project Document; details on biodiversity are provided in the section on “Global Significance” in paragraphs 9-15 (below).

Soils and vegetation in the project area

- The ecology of the wet Miombo block represents typical characteristics of Miombo woodlands and is closely linked to soil types, vegetation and distribution pattern of rainfall. Although Miombo soils are inherently nutrient poor, there is a wide variation in fertility influenced by depth and drainage. The major soil type in Tabora is region is Ferralic Cambisol (*locally known as Kikungu in Nyamwezi*), while that of Malagarasi Muyowosi is dominated by vertisol (*Kadondoli in Nyamwezi*). The Malgasi vertisols are considered generally fertile, particularly those which occur in valley bottoms and flooded areas, and they have the potential to support production of a wide variety of crops. They are also associated with fluvisols which are also potential in the production of rice. The Tabora show a wide local variation in fertility and drainage, ranging from sandy loams in the south and centre and west and north to heavy black/dark brown soils in poorly drained areas.
- Upland vegetation consists of woodland, bush land, thickets, and grassland while lowland or wetland vegetation consists of wooded grassland and swamps. The sandy soils are dominated by a mix of *Branchystegia-jubernadia* and *Hyperrhenia* grass and other associations dictated by variations in soil fertility and structure. On the heavier soils, the tree cover is lower and grass dominates in all marginally drained areas.

⁴ Excluding project team staff time and UNDP staff and travel expenses

Socio-economic context:

5. As reported by Campbell et al (2009), the socio-economics of Miombo woodlands is highly influenced by eight characteristics unique to the biome; they in turn influence soil-fertility and biomass production, determining how people utilize the resources and relate to the ecosystem. The woodlands have relatively low proportion of high quality commercial timber species so a commercial timber industry is absent. However majority of the tree species have unpalatable and toxic characteristics and provide fibrous bark used extensively in a variety of ways such as construction, weaving, beehives, etc. In contrast to the high availability of wood and bark products, there is a relatively low availability of edible-fruit producing species. Most Caesalpinoide trees in the miombo produce small, hard, explosively dispersed seeds. Edible products only occur in limited quantities as fruits, edible roots or vegetables growing as weeds on cleared farms.
6. Caesalpinoide tree species, as well as *Uapaca kirkiana*, have fungal associations with their roots (Frost 1996; Lowore and Boa 2001). Coupled to the extensive area covered by these woodlands, this evolutionary association has resulted in a remarkable diversity of associated macrofungi, many of which are edible, making the biome “a kingdom of mushrooms”. The dominance of *Brachystegia*, *Julbernardia* and *Isoberlinia* provides the basis for beekeeping as a highly significant (culturally, socially and economically) form of land use in miombo woodland. The woodlands experience high levels of insect herbivory. Some of these, such as the scale insect *Aspidoproctus glaber* are a threat, resulting in die-back. Others are a culturally important food resource, the best known being the Saturniidae, a family of giant silk moths, whose caterpillars are an important source of protein and cash to local people.
7. The consequent resource availability and opportunities for new natural resource enterprises have led to some particular uses of miombo, with economic and management implications, particularly at the local level. It is estimated that over 75 million people live within the miombo biome, with 40 million depending on the woodlands directly and a further 15 million in urban areas drawing food, fibre, fuelwood and charcoal (Campbell, et al 1996). In Tanzania, the woodlands provide a range of products important to rural livelihoods, from medicines and food to building timber and fuel. The woodlands are also central to the spiritual needs of the people, with specified trees and even blocks of woodland being conserved by communities for cultural reasons. Sacred groves associated with spirits of the dead or with territorial rain deities are found throughout the miombo region.
8. The woodlands are also primary source of energy, in the form of firewood and charcoal, and a crucial source of essential subsistence goods such as poles and construction products, timber, materials for tool handles and household utensils, foods, medicines, leaf litter, grazing and browse. They also have high potential for bee-keeping. Under this system, the woodlands provide a rich variety of alternative livelihoods and income.
9. The Miombo woodlands are under three types of ownership: State owned, Local government owned and community managed.
10. **State owned:** under this category, some forests are owned by the Central Government but managed under Joint Forest Management (JFM/Sustainable Forest Management (SFM) regimes. In this regime communities/villages partner with the central government to manage forests.
11. **Local government:** Under this regime forests are owned and managed by Local Government Authorities (Districts) under JFM/SFM or District Councils, with the participation of communities. JFM has been heavily promoted in all catchment forests in Tanzania, particularly those considered to be important biodiversity areas with high conservation value. In many places the protection status of the most critical forests is now being upgraded to nature reserves, which provides them with additional protection (Blomley and Iddi, 2009). This protection status notwithstanding, participants in the Focus Group Discussion and also key informants confirmed that both land and tree tenure in this management regime remained firmly in the control of the state (national or local).
12. **Community owned:** There are also forests owned and managed by communities/villages with technical assistance from Forestry and Beekeeping Division (FBD) under Community Based Forestry Management (CBFM) regime. Each village in such areas has a Village Environmental/Village Natural Resources Committee, which has the overall management responsibilities of community/village forests. These committees also assist

in the management of Central Governments and Local Governments forests by carrying out patrols in the forests. The management approach of CBFM emphasizes full delegation of management rights, responsibilities and returns to village level institutions and below.

13. **Global significance:** The Miombo woodlands are biologically rich and diverse with up to 8500 vascular plant species, 4,590 them endemic, together with 35 endemic mammals, 51 endemic birds, 52 endemic reptiles, 25 endemic amphibians and an unknown number of endemic invertebrates. The antelopes are especially diverse and include Eland, Impalas, Gazelles, Oryx, Gerenuk, and Kudu. Other important animals include Buffalo, Wildebeest, plains Zebra, Rhinos, Giraffes, Elephants, and Warthogs. Up to sixteen grazing and browsing species may coexist in the same area. The species-rich herbivore trophic level also supports a diverse set of carnivores, including cats (lions, leopards, cheetahs, servals), dogs (jackals, wild dogs), and hyenas.
14. The Malagasi basin is home to more than 20,000 water birds, estimated to constitute more than 1% of the individuals of several water bird species, including the shoebill *Balaeniceps rex* (10-20%), the wattled crane *grus caunculatus* (5-10%), the Ardea goliath (1-2%), and the Egretta alba (2%) (SIMMORS, 2000; URT, 2001). Although most birds are resident with restricted movements, the region hosts long distance migrants, which usually come in the wetlands during summer and return to the north at the end of winter, including the white pelican. The African spoonbill and Madagascar bee-eater are important intra African migrant resident in the wetlands for some part of the year (Yanda et al, 2001). Other bird species include the saddle billed stork (*Ephippiorhynchus senegalensis*), the great egret (*casmerodius albus*) the great snipe (*gallinago media*) the white winged tern (*Chlidonias leucopterus*) and many other important species.
15. The western miombo woodlands are also home to various protected areas, including Gombe National Park (Chimpanzee area-endangered species), Katavi National Park, and the Kigosi, Moyovosi and Ugalla Game Reserves. Other protected areas are the Game Controlled Areas of Luganzo, Ugunda, Msima, Inyonga, Rungwa River, and Mlele, and the Forest Reserves of Igombe River, Inyonga, Ugunda, and Luganzo. However, approximately 54% of miombo woodlands are found under public lands (URT, 2001). At a continental level the miombo acts as a buffer zone (Tanzania, DRC, Zambia), protecting the biodiversity values of the ecologically important Congo Basin Rain Forests. By absorbing population pressure, the miombo woodlands buffer the remaining areas of Guinea-Congolian forest (Gombe & Mahale Mountain NPs in western Tanzania).
16. In addition, the woodlands provide ecosystem services in harboring biodiversity, maintaining carbon stocks (and therefore regulating climate), controlling soil erosion, providing shade, modifying hydrological cycles and maintaining soil fertility. A recent study by UNEP/WCMC reported that the Miombo woodlands provide high carbon stocks at about 60-80 tons per hectare⁵ of above ground stock. However, other studies from miombo woodlands in Mozambique (Williams et al⁶ reported lower figures of 19.0 (+/- 8) (t C ha⁻¹) for stem wood hectare. with a recovery rate of 0.7 t C ha⁻¹ per annum on land that had been abandoned for agriculture. The study further found that undisturbed miombo woodlands have considerably higher soil C content than stem (vegetation) carbon; storing up to 100 tons of carbon per hectare in some particularly carbon rich patches. The study also found evidence that disturbance of soils associated with cultivation generally leads to a rapid decline in soil organic C content as a consequence of enhanced microbial respiration; the median soil carbon stock for undisturbed woodland soils was 23% higher than in disturbed abandoned agriculture fields (57.9 t C ha⁻¹ against 44.9t C ha⁻¹). In Tanzania these ecosystem values are recognized, with over 100,000 km² of Miombo forests incorporated within major Protected Areas, either as National Parks or Game Reserves.⁷, where sport hunting of the large mammals ensures a high rate of economic return in Game Reserves. However, a recent study confirmed that although much of the high biodiversity high carbon areas are covered in the protected area network, there is a significant area of high carbon land, particularly in the Miombo that is not well represented in the network⁸.
17. However, despite such diversity of resources, the region is faced with a number of management problems associated with multiple trade-offs in managing different resources. For example, the past few decades have

⁵ Carbon and Biodiversity: A demonstration Atlas. UNEP WCMC 2008.

⁶ Williams et al, 2008: Forest Ecology and Management 254 (2008) 145–155

⁷ NPs: Ruaha; Katavi eg Mlele Hills, and part of Mahale Mts. Game Reserves: Selous, Rungwa, Moyowosi, Ugalla Biharamulo, Kigozi; PLUS Forest Reserves: of several thousand sq kms in SE and West Tanzania, over fifty FRs of over 40,000 sq kms total.

⁸ Carbon and Biodiversity: A demonstration Atlas. UNEP WCMC 2008.

witnessed a rapid change in people's use patterns and perceptions and, consequently, benefits derived from the woodlands. Central to this change is commercialization without consideration for sustainable use, population increase and weakening resource governance, amongst many others.

Threats, root causes and barriers analysis:

18. Degradation of Miombo woodlands is well pronounced in Tanzania, which has the second highest rate of deforestation in the Miombo belt (FAO 2007). The miombo have been heavily modified with the mature woodland in Tabora region recorded as mostly secondary since the early nineties (Deweese, 1994). The major causes of degradation are deforestation and over-extraction driven by resource scarcity, commercialization, ineffective local institutional arrangements, droughts, and high demand for wood products from urban areas. Deforestation is largely caused by agricultural expansion, shifting cultivation, commercial timber harvesting, and overexploitation for fuelwood and poles and general industrial development including general urban development. These factors have, to a large extent, been influenced by the high rate of population growth since 1960s. In addition, the villagisation programme of 1970's significantly affected village environments by intensifying pressure on land and woody biomass resources through concentrating a large human and livestock population in specified land areas (Kikula, 1997). The details of these threats are outlined below.
19. **Changing agricultural systems and agricultural expansion without considerations for sustainability:** The main traditional form of land use in the Miombo region was shifting cultivation on small fields of sorghum, millet, maize and pulses, either under some form of shifting agriculture, usually involving ash fertilisation and hand cultivation. In drier regions free from trypanosomiasis, shifting agriculture was practiced in conjunction with rearing livestock, which provided the necessary draught power for cultivation (Puzo 1978). This has changed dramatically in the last few decades. In Tanzania, miombo is seen as the "last agricultural frontier", to be converted and developed, and to accommodate people emigrating from over-populated mountains such as Kilimanjaro, and has experienced an influx of refugees.
20. Refugee movement is a major migratory category in western Tanzania. Political upheavals in the DRC and Burundi have generated a wave of refugees that have found refuge in the border regions of Kigoma, Kagera and Tabora. The establishment of new settlements/camps involves the erection of new buildings and clearing for new farms. Extraction of ropes from the regenerating young miombo woodland is shifting the woodland population structure and endangering long term stability. The most affected is the southern part of Kigoma and Tabora Regions where there are several refugee camps. Bitanyi (1997) estimated that a 2-year radius of deforestation around refugee camps ranged between 1.9 km to 11.2 km, depending on the size of the refugee camp and number of refugees.
21. Although the regional population growth rates and average household sizes appear low and stable, they mask remarkable variations between wards and villages. Average household sizes have risen over time indicating that demographic trends at that level are more dynamic than demonstrated by the regional data. For example, the household sizes for Kigoma Rural District rose from 4.5 to 5.5 between 1967 and 1978 and from 5.8 to 6.3 between 1988 and 2002. In Tabora Region (Rural Districts) household sizes changed from 4.5 to 5.0 and 5.7 and 5.8 for the same periods. These figures deviate positively from the national average recorded for the same period at 4.4, 4.9, 5.2, and 4.9. Fertility levels are high in the region, with women capable of conceiving between 6 and 15 pregnancies in a life time in some of the villages. This is exacerbated by an observed trend of declining age of first pregnancies.
22. Some strategic areas like Nguruka, Usinge and Mtegowanoti in Nguruka Wards in Kigoma and Tabora Regions, respectively, suffer more from strenuous pressure on their resources due to rural-rural migration than other less endowed areas in the catchment. Nguruka and other wards have in this respect been the focus of many immigrants from the Ufipa Plateau, the eastern parts of Kasulu and Kibondo, Shinyanga and Urambo who come in to fish, to find virgin land, and to engage in various trading ventures. The seasonal influx of the Sukuma agropastoralists and their lubaga herds in Mtegowanoti Ward is a typical case in point.
23. In addition, there have been expansion of agro-pastoralists southwards (burning and clearing shrub cover which removes tsetse fly). Most peasant cultivation is for maize and some cassava; crops fail frequently, fertiliser is essential, but expensive; dry-seasons are long and hard. Crossing the woodlands is a network of drainage

channels (“dambos”) that provide dry-season water resources and small-scale “irrigated agriculture” (e.g. rice) is possible. These fragile wetlands support woodland biodiversity and human settlements in dry seasons and so are magnets for immigrants, causing rapid degradation.

24. Deforestation is also associated with the tobacco industry. Tobacco is a major cash crop promoted, with incentives by government and private sector. Indeed, nearly 90% of African tobacco is produced within miombo woodland countries where the annual loss of forest cover is altogether 1.9 million hectares, amounting to 51% of all forest cover change in Africa (3.7 Mill. ha). In Tanzania, tobacco provides the largest share of income to the District coffers in the predominantly miombo woodland areas of central and western Tanzania, where more than 60% of the country’s tobacco is produced. But tobacco growing has several major drawbacks to sustainable forest management: it is a pioneer crop and often at the miombo frontier; the crop develops root nematode infestation requiring field abandonment after three years, hence virgin land is always needed for seedbeds and tobacco plots (fresh land is free from nematodes). The areas temporarily abandoned during the rotation period are rarely planted with trees, but with agricultural crops - maize, millets, groundnuts, etc. Tobacco drying consumes huge quantities of wood; the curing barns are inefficient, and with individual households it is difficult to build bigger and more efficient ones because the costs are too high for family enterprises. During land clearing for planting tobacco, the trees are usually completely destroyed by burning rather than stored for tobacco curing. Wood for curing tobacco is then harvested in new areas.
25. PPG studies revealed that curing one acre’s crop required about 14 cubic meters of firewood. To flue-cure 600 acres of tobacco grown in Usunge Ward in one season for example, required a minimum of 8,400 cubic meters of wood. In Tanzania flue-cured tobacco production is dominated by smallholder farmers who account for about 90% of annual output. (Mnzava 1984). Although there are two main types of tobacco produced, flue-cured Tobacco account for more than 95% of the total tobacco production in the miombo woodland areas such as Urambo, Mpanda and Kigoma rural districts. Up to 75% of flue cured tobacco production is obtained from Tabora.
26. Natural regeneration in abandoned tobacco fields is problematic, partly because of adverse environmental factors, and partly because of the inherent characteristics of some of the species involved. This “modern shifting cultivation” therefore leaves the soil open, increasing vulnerability to invader weeds and erosion. Although tobacco companies have tried to introduce woodlots, majority of the wood for drying still comes from the natural forest. A study undertaken in Songea in 2006 for example found that 88% of drying wood is taken from indigenous natural woodlands, with only 12% coming from the woodlots.
27. **Inefficient charcoaling processes:** Charcoal is the most commercialized resource in the miombo region, with 70% of cash incomes of most of villagers in central Tanzania coming from one or two aspects of the charcoaling process. PPG studies reported that a total of 1,368,124 tons of charcoal are consumed each year in the country (3,748 tons daily). Nearly 99% of charcoal used in Tanzania is from natural forests and woodlands; for example charcoal from Itebulanda Village (Urambo District, Tabora Region) was made in the Ugalla Forest Reserve. Older hardwood trees such as *Melicia excelsa*, *Pterocarpus angolensis* and *Dalbergia melanoxylon* are the most sought after, as they produce a very high quality, longer burning charcoal. Large tree species (>20cm diameter) with high caloric values are the most preferred, due to the large quantity of dense and hard charcoal they produce (Monela *et al.* 1993).
28. The technologies for both production and consumption of charcoal contribute to further deforestation. To produce the 3,748 tons of charcoal consumed in the country daily using traditional methods, the producers have to clear around 399 hectares of forest every day, equivalent to clear cutting nearly 4,000 km² of forest, most of which will not regenerate as it is converted to other land uses (Norconsult 2002). A full year of such consumption equates to more than 145,000 hectares or clear cutting more than over a million kilometres (ibid). As reported in table 2 (below), there is already a negative balance between woodlands needed to supply this amount of charcoal sustainably compared to woodlands available. This negative balance is projected to increase dramatically if the current trends continue. The Forestry and Beekeeping Division of Tanzania estimates an annual forest reduction between 130,000 to 500,000 ha, against only 25,000 ha planted annually.
29. The accelerated harvesting of trees impacts negatively upon soil, watersheds, biodiversity and climate change. According to various studies and calculations, each ton of charcoal produced and consumed in Tanzania

generates nine tons of CO₂ emissions, one million tons of charcoal thus translating into nine million tons of CO₂.

30. To the extent that charcoal production competes with other forest uses, it reduces growth potential in the forest sector as it leads to a decline of the total stock. In many parts of Tanzania, e.g. Dar es Salaam, Morogoro, and Iringa, the sustainable yields seem to have been exceeded and thus the country's natural capital is sacrificed for charcoal production. Charcoal is hence being produced at a cost to society in terms of its present and future availability to meet wood biomass needs and wood needs for other purposes.

Table 3: Projection of the impact of charcoal production on the country's forests and woodlands (Source: Norconsult (2002:18))

Year	Urban charcoal consumption (tons)	Woodlands needed for sustainable production(km ²)	Woodland remaining (km ²)	Woodland surplus or deficit (km ²)
2002	926,000	98,511	300,000	201,489
2005	1,071,961	114,038	218,700	104,662
2010	1,368,124	145,545	129,140	-16,405
2015	1,746,111	185,757	76,256	-109,501
2020	22,285,529	237,078	45,028	-192,050

31. The net present value (NPV) for both charcoal and tobacco show a positive value when environmental cost-benefit analysis is not included. When the cost of labour, raw materials and opportunity costs are considered, the NPV value is negative indicating that profit realization is currently being accomplished at the expense of sustainability. Biofuel production is also contributing to deforestation. Village governments are giving off areas of land for *Jatropha* plantations. Between 2004 and 2007, it is estimated that close to 220,000 ha have been allocated to various international companies for *Jatropha* country wide (UNDP Tanzania Country Office, 2008). Although local communities and their leaders are quite enthusiastic about the investments into the local economies, they are not always fully aware of the potential negative impacts of monoculture on land especially on the forests and other natural resources.
32. **Climate change as a compounding threat:** Climate change and variability has been a part of the rural agriculture in Tanzania for decades, increasing the burden on food security and income among many farming families. Analysis by Hatibu et al. (2000) revealed that more than 33 percent of disasters in Tanzania over 100 years period were related to drought, with 37 occurrences of drought recorded between 1872 and 1990 alone (URT, 1998a). Some important evidence of climate change often mentioned for Tanzania include receding ice on Mount Kilimanjaro, submergence of Maziwe Island and intrusion of fresh water by salt water in shallow wells in Bagamoyo district (Mwandosya et al., 1998; WWF, 2006; Mwandosya, 2006).
33. The IPCC forecasts an increase in average temperatures for most parts of Tanzania (IPCC, 2007), but warns of a rapid change in the occurrence and predictability of climatic variability. According to this report, many parts of the western region have experienced an increase in temperature of between 1 and 2°C from 1974 to 2005, while the rest of the country increased from 0.2 to 1°C during the same period. The report projects further increase in temperature of between 3 and 4°C by 2080 under no action scenario. The International Institute for Environment and Development (IIED) forecasts a rise in temperature of between 2 and 4°C and a decline in rainfall of between 5 and 15% over Western Tanzania by the year 2100 (IIED, 2009), under no action scenario. In 2005, Tumbi meteorological station reported the highest temperatures of 35.2°C since it started recording over 30 years ago (TMA, 2009b). Rising temperatures, changing precipitation regimes and changes in the amount of carbon dioxide are expected to affect phenology, composition, structure, distribution, succession processes and community dynamics in the following ways, which will affect the flow of ecosystem goods and services, and in particular the ability of the ecosystem to support economic development and wellbeing sustainably. A more detailed discussion of the potential impacts on the composition, phenology and population structure of the miombo woodlands is provided in section I of the UNDP Prodoc.
34. Community members in Itebulanda village reported that the abundance, vigour and productivity of some traditional crop varieties are declining because of the changes and uncertainty of rainfall and increased incidence of drought. They tend to succumb to drought and dry out before they flower, a situation that is causing some traditional varieties to become extinct. In Maboha village the major perceived impacts of climate change¹⁰

reported included: (i) Low crop productivity because of recurrent drought; (ii) Delayed onset of rains that affects production during the season; (iii) Drying of water wells that caused water shortage, for example in 1996/1997, 2000/2001 and 2006/2007. It was reported that in that season women were most affected because they had to travel long distances in search of water. This called for the involvement of men in the search for water. (iv) Unusually heavy rains have been destroying crops and infrastructures (e.g. roads), for instance in 2009/2010; (v) Low honey production in periods with drought, for example in 2006/2007; (vi) Decline in fisheries activities during drought periods.

35. The long-term solution to the threats affecting biodiversity, ecosystem and livelihoods in the Miombo region as a whole is the adoption of sustainable-use management practices for resources harvested by local people for subsistence and local economic growth, and better regulation of commercial activities. A management strategy is needed that fully recognizes the fact that Miombo woodlands will continue to provide, for many decades, the key inputs to rural livelihoods in the face of commercialization and change.
36. The key then lies in ensuring that rural households and commercial tobacco farmers modify their productive practices to make them compatible with biodiversity conservation, while respecting development needs and cultural norms. A number of productive options exist which have the potential to contribute to this long term solution. To ensure sustainability, a management model must be based on sound understanding of the miombo ecological framework and sustainability, management options that ensure sustainable use, effects of macro-economic and inter-sectoral influences on management and delivery of ecosystem goods and services, optimal local institutional arrangements in the context of increasing resource scarcity and changing markets.
37. The government, tobacco industry and the people of the western region have embarked on better management of the miombo woodlands but the effectiveness of their efforts is being hampered by policy, knowledge, capacity, skills, markets and technology barriers.
38. **Policy barriers:** The policy barriers in Tanzania originate largely from the history of development of the forestry sector. Like the rest of the region (and the world), until relatively recently forestry took the form of top down government approaches focused on the introduction of new technologies. This was characterized by establishment of village woodlots, planting fast-growing species, and the demarcation of protected forest areas from which local people were excluded. Indigenous species, local agroforestry systems, and traditional resource management practices, as well as institutions for communal forest stewardship, were often ignored. Decisions about forest management were taken in centralized government offices, far from the people affected by the policies, or more typically, decisions were not taken at all. In Tanzania for example huge areas of miombo were gazetted as forest reserves, but there were no institutions established or developed to manage the areas, consequently, no tradition of management *per se* was developed and the focus remained on regulation and revenue generation for the state.
39. However, Tanzania has worked hard in the last two decades to reverse this situation and several reviews have reported that the country is very advanced in development and implementation of a policy enabling environment for community based forestry. For example, the country has embraced decentralization of natural resources management enshrined in the Forestry policy (1998) and the forest act (2002). The forest and land policy are closely aligned and implementation of the instruments is impressive with large numbers of villages and big forest areas already covered (Blomley and Ramadhani 2006). Village Forest Reserves are fully devolved in many places and communities are receiving full revenue rights (Wily and Dewees 2001). Despite these efforts, there are localized barriers. As a developing country, Tanzania and the miombo countries need to provide a policy environment that balances economic development, woodland modification, demands for new agricultural land, and the longer term costs of the loss of woodland cover. There are unfortunately few tools available to planners to fairly assess these costs and benefit, or explain how they should be weighted in the policy process. In addition, the technical information available also does not take into account the new reality that much of the management will be undertaken by local people. In Tanzania, this situation is exacerbated by the fact that national policies are still sectoral in both content and context, despite the recognition of the decentralized district as the centre of mainstreaming processes. Such sectoralism has led to contradictions, gaps and duplication.
40. A range of regulatory instruments designed to prevent over-exploitation of forest resources and to raise revenues for resource management inadvertently undercut livelihood opportunities for local producers and traders. For

example, there are many policies that prohibit the harvesting of forest products for commercial purposes from state-owned forests. Ironically, these restrictive institutions have not been very successful in preventing resource degradation; in many cases they have had the opposite effect by removing the responsibility for management from the actual users. In addition, revenue generation by the state has been limited due to weak revenue collection systems.

41. Studies of PFM⁹ (Participatory Forest Management) however show that the strategy (PFM) offers an effective tool to convert the current charcoal sector from largely an illegal trade to one that allows for sustainable charcoal production with economic benefits to rural communities, in addition to the substantial conservation benefits it yields. Its effectiveness is however hindered by yet more policy barriers. For example, separate departments in the Ministry of Natural Resources are advocating for villagers to develop separate Village Forest Areas and Separate Wildlife Areas, with different modalities, rights and responsibilities. This situation is made worse by poor implementation of national policies due to weak enforcement of agreed regulations and procedures (e.g. land-use planning guidelines, forestry rules, and both village and district bye laws). This poor enforcement is driven by low levels of institutional / individual capacity, at national and local levels to seek sustainable resource management. As a result both biodiversity and livelihood values of the Miombo woodlands are poorly mainstreamed into district planning and economies.
42. When well implemented CBFM provides opportunities for generating tangible and sustainable livelihood impacts while improving ecosystem resilience and flow of ecosystem goods and services. Indeed, pilots from Iringa District where CBFM models were piloted in the late 1990s, shows that forest areas managed under JFM and CBFM are recovering compared with forests managed by government alone, or under open access regimes. Wide scale adoption of CBFM and indeed the effectiveness of the current pilots is being reduced by many challenges including inadequate enforcement of existing laws and bye laws against forest degradation and deforestation; entrenched corrupt practices and lack of good governance in the forest sector; low level of environmental education among community members that could help in further protection of forest resources; long and tedious process in defining and demarcating areas to be under CBFM regime; lack of political will due to conflicting sectoral interests in forest and other natural resources use; lack of coordination between sectors and within sector (PPG reports, 2010).
43. The miombo woodlands region in particular is plagued by weak governance and inadequate enforcement of NRM policies, rules and regulations at the local level. For example key informants interviews revealed that tobacco farmers have always been advised by the tobacco companies to plant own trees before cutting naturally occurring ones for curing tobacco, and they are also provided with tree seedlings along with inputs for tobacco production. Despite such effort not all seedlings distributed to farmers are planted, survival rates are low, and the use planted tree for tobacco curing is very low. Although most informants attributed the low adoption to the fact that the tobacco companies provide seedlings for exotic tree species which they claim are inefficient for tobacco curing, the fact that there is no enforcement of rules on tree cutting from the natural forests makes it easy for the farmers to flout the rules, ignore the seedlings and carry out deforesting natural forests. Similarly, while many families have been assisted to build improved brick kilns, a high percentage have opted to use the improved kilns as dwelling places and carry on with the inefficient curing processes.
44. Indeed more than 50% of the respondents in the pilot villages reported that they were not aware of the existence of the bye laws that govern management of forest resources in their area. Only 27% of those who knew about the bye laws thought they were effective, with a further 43% regarding them to be only moderately effective, while 30% perceived the bye laws as being not effective. This was a more pronounced concern in Maboha village where community members (35% as compared to 28% in Itebulanda village) seemed to be unhappy with the invasion of the forestland by migrant livestock keepers who are being given the permission to occupy the forest by village leadership.

⁹ Tom Blomley and Hadija Ramadhani: SLSA newsletter Issue 17 (Nov. 2005), Khanya-African Institute for Community Driven Development (Khanya-aicdd)

45. Most respondents reported that local level resource governance and participation of the community in CBFM were weakening. Community involvement in forest management has largely been through engagements in forest patrols particularly through Village Game Scouts (VGS). Similar type of forest management was reported in Maboha village. It was claimed that in the past most villagers were involved in preventing and/or controlling bush fires and preventing unauthorised cutting of trees in the forest. Participants claimed that the pattern has changed in recent years because some village leaders are breaking the regulations, and have been allowing some people to encroach the forests.
46. The charcoal sector falls partially between a number of Ministries, including the Ministry of Energy and Minerals (MEM), the Ministry of Natural Resources and Tourism (MNRT), the Ministry responsible for Local Government and the Ministry responsible for the Environment. All of these Ministries are subject to common national policies that impact the charcoal sector, but few concrete strategies and actions have been developed. This despite the fact that charcoal is hugely destructive to the environment, causing high rates of deforestation, carbon dioxide emissions, and water catchment and biodiversity losses.
47. **Capacity and knowledge barrier:** The greatest barrier to adoption of production practices that are friendly to biodiversity and promote ecosystem resilience is the poor understanding of the miombo woodlands compounded by low individual and institutional capacity at national and local levels. Although the miombo woodlands have been described many times, their ecology, silviculture and management potential are still not well understood. Miombo woodlands have a unique problem of having a low inherent productivity because they are located on some of the poorest soils in Africa. Because the woodlands have low productivity, returns to active management will generally be low, thus providing few incentives to actively manage. Nevertheless for the rural poor, the woodlands need to be managed for multiple outputs. But management of miombo for multiple outputs is not easy, both because the silviculture of managing for multiple outputs is poorly understood and because the complexity of the management system increases when multiple stakeholders have interests in managing for different outcomes.
48. The problem is that it is not easy to manage multiple resources (Chidumayo et al. 1996). There are likely to be multiple trade-offs in managing different resources, and there are numerous information gaps on the species concerned. The main technical management issues in miombo woodland largely relate to harvesting, regeneration, coppice management, fire management and grazing management. Because of the diversity of uses of miombo woodland, the intensification of any one particular management strategy is likely to affect the production of other woodland products.
49. Despite the great needs, most government authorities responsible for planning have limited capacity for cross-sectoral planning and adaptation to climate change. Local institutions such as the village environment council and religious institutions have limited capacity, cohesion and political clout, reducing their ability to exert significant influence on the Government in relation to technical support, marketing, finance and resource tenure issues. Most resource users have limited knowledge of SFM techniques, and have few incentives for adopting improved practices. There is limited extension service support, and no effective mechanisms for identifying and sharing lessons on SFM and best practices. Information sharing is therefore haphazard and gaps in knowledge and awareness are numerous. As a result, there is no integrated “Miombo development plans / programmes” that are able to monitor land-use and receive planned immigration and channel this into sustainable productive enterprises that allow the ecological and social benefit streams from productive miombo woodland to continue. The Miombo woodlands however continue to receive immigrants from other over-populated areas of Tanzania, and resource management planning and practices are not able to deliver sustainable management guidelines or best practices for people or the habitat.
50. Specifically, there are inadequate skills and knowledge on soil fertility management, in the face of declining soil fertility, inaccessible finance for fertilizers and shortening fallows: Focus group discussion with village communities in Itebulanda and Maboha village indicated that productivity of maize can be improved from a low of 5 tons per acre without application of fertilizers to a high of 15 ton when NPK is applied at the recommended rate of 25 kg N per ha. The study however revealed that communities have little knowledge of fertilizer application, particularly as part of broader soil fertility management package. The problem of the miombo soils is the inherent fertility, which cannot sustain crop productivity for more than three seasons without replenishing mineral nutrients. Fertilizer is expensive compared to actual return on investment. While organic residue₁₃

management could provide an alternative to fertilizers, their effectiveness is reduced by the rapid decomposition of organic matter due to high temperatures.

51. **Limited options for exploiting biodiversity friendly alternative income generating activities (to support livelihoods):** Despite the importance of the non timber forest products of the miombo to the local and national economies, financial returns to the local communities and national coffers are still limited. This is largely due to the fact that many local farmers in the rural areas do not have the capacities (skills, knowledge and finance) to engage in production and sale of biodiversity friendly products to raise incomes and supplement livelihoods. With the exception of tourism, the communities who are expected to forego immediate benefits associated with degrading the woodlands are not being adequately compensated for the positive externalities to off-site beneficiaries. The situation is compounded high levels of poverty combined by the low margins for investing in active management of the miombo woodlands. The absolute income of most rural households is so low that cash constraints push decisions towards high preferences for rapid exploitation of the natural resources (including miombo woodlands). Households needing to secure cash often choose to over-use and, if necessary, deforest. While woodlands are quite important for subsistence products they are less important for cash income, and a tree has to be felled to fetch money. Under these circumstances, communities show strong tendency to discount the future and the need to secure immediate survival is greater than that of ensuring conservative use.
52. The development of a vibrant local economy is further complicated by inadequate access to credit facilities. Currently, the available credit facilities are tied to tobacco and cotton production. Focus group discussion in the study villages revealed that limited access to input for food crop production has contributed to high dependence on tobacco production in order to get inputs which are shared with food crops. This was also reported to be a deterrent to reforestation abandoned tobacco fields. In the absence of fertilisers for food crops, farmers use these fields, taking advantages of fertiliser residues from tobacco farming. Moreover, fertilizer meant for tobacco is often spread over to food crops, making it inadequate for either. This is compounded by the high cost of fertilisers, even when it is available in the local market. Cooperatives could improve access to inputs; but nearly all the cooperative societies are also geared to cash crops, mainly tobacco. For example PPG assessments revealed that Maboha village had no primary cooperative society or credit facility; and that while farmers understand the importance of such cooperatives, the conditions requirements for their establishment were a hindrance. For instance, respondents reported that the tobacco companies required the village to guarantee an annual produce of tobacco of no less than 200,000kg as a condition for registering a cooperative. This is well beyond them.
53. The situation described above is in spite of the fact that innovative biodiversity-rich farming systems complimented by high value NTFPs can reduce the need for land clearing, limit agricultural expansion and reduce both deforestation and forest degradation. Most of the NTFPs are naturally occurring and are therefore organic. Despite the current global demand for organic products, there has been little promotion of demand for such NTFP products, such as honey, vegetables, etc. Yet, while there is some information on fuelwood and honey production, information on many other miombo products, such as edible insects, mushrooms and other edible products is extremely limited. There is little marketing of these unique products and the supply chains are ephemeral, lacking a certification and verification process needed to provide traceability. The management model needs to build on a clear understanding of how such products enter the market, trends in commercialization and the socio-economic and environmental impact of these processes. Understanding of the temporal dimensions of markets and marketing channels, their contributions to livelihood strategies and gender differentiation, their impacts on local institutional arrangements and on woodland structure and function is however very limited.
54. There are lessons emerging from trade in natural products such as baobab products, marula, etc., particularly from southern Africa (PhytoTrade), that would be useful for the NTFPs of the miombo, but there is little sharing of such information. In the absence of information on markets prices offered for many products act as disincentives to sustainable harvesting and use. Revenue collection by government and councils from the little trade occurring is haphazard and ineffective. These barriers compound the adoption of Payment for Ecosystem Services (PES), as described below.
55. **Inadequate opportunities for PES, particularly linked to sustainable charcoal:** Beyond achieving the objectives of conservation proper, PES can potentially provide important additional and regular income flows,¹⁴

or other material benefits, for cash-poor forest-dwelling communities. PES schemes thus have the potential to create 'win-win' situations for people and the environment. A key problem has been the lack of buyers for environmental services from Miombo woodlands in the country. There are limited returns to communities from tourism revenues and the benefits of CBNRM are not adequate in the face of the abject poverty and the cost benefit analysis reveal a higher short-term opportunity cost for conservation than degradation. Sustainable charcoal provides an opportunity for PES in Tanzania.

56. Charcoal will remain a growing dominant source of energy for cooking for the urban households sector for the foreseeable future in Tanzania. PPG studies estimated that the pilot wards produce more than 10,000 tons per year. Engaging in sustainable charcoal would provide a financial incentive for SFM. Sustainable charcoal refers to charcoal that has been produced from sustainably managed woodlots, woodlands or forests combined with improved processing and utilization techniques, where the conversion along the charcoaling chain is as efficient as the current levels of technology allow (Kituyi, 2000; ESD, 2007). Sustainable charcoal concept aims at minimizing material and energy losses at all stages of the charcoaling chain. In this case, wood obtained from sustainably produced biomass resource is harvested using efficient ways ensuring minimum waste is generated. The wood is then converted into charcoal using improved and efficient kilns after which proper handling is ensured during packaging, storage and transportation to minimize waste. The generated charcoal is consumed using improved cookstoves such as the Kenya Ceramic Charcoal (KCJ), and finally, the charcoal dust is used as fertilizer.
57. Sustainable charcoal can earn carbon credits under the CDM (and voluntary markets). Measurement of emissions mitigated through sustainable charcoal can be done in accordance with the CDM approved baseline and monitoring methodology AM0041 -"Mitigation of Methane Emissions in the Wood Carbonization Activity for Charcoal Production" – UNFCCC CDM EB¹⁰. This methodology recognizes sustainable charcoal as a double mitigation technique because it reduces the amount of methane from carbonization as well as reducing amounts of wood being converted to charcoal, by increasing efficiencies. Where sustainable charcoal includes planting of trees in woodlots and/or incorporation into agroforestry practices, it introduces a third mitigation aspect through the creation of carbon sinks. Emissions reductions from the carbon sink are however too complex to calculate for most rural areas in Malawi due to deficiencies in baseline data and annual growth and production characteristics of the species used for charcoal production.
58. In the short term, significant emissions reduction can however be achieved through the use of improved efficiency kilns, improved conversion techniques, drying of raw material used for charcoal, improved stacking of kilns, reduced wastage of materials through improved kiln operations and wood sorting skills combined with use of improved and more efficient cookstoves. It is reported in literature that adoption of such improved practices can lead to 25-40% reduction in the quantities of wood needed to produce similar quantities of charcoal¹¹. By earning carbon credits (co-finance) and providing other social benefits, sustainable charcoal can provide an incentive for SFM.
59. Yet there are many barriers to sustainable charcoal adoption in Tanzania in general and in the pilot wards in particular, that have so far hampered the adoption of the concept. These barriers include lack of an enabling policy or institutional arrangements for a system wide adoption and regulation. On policy: Despite its high contribution to the national energy budget, there is still no official recognition of charcoal production and marketing by national energy or forestry policies. The forests and woodlands are therefore not being managed to support charcoal as a legitimate product. Various aspects of charcoal are under different ministries and therefore different policy instruments. Charcoal is not taxed in a similar manner to other sources of energy: consumers are therefore paying less than its actual cost, particularly because the cost to the environment in lost ecosystem services is not factored in its pricing; the government also losses considerably large amounts of revenue that could be utilized to support sustainable production. In 2002, it was estimated that the charcoal business generated revenues of more than Tshs. 200 billion (\$200 million) and that more than 70,000 people from rural and urban areas were employed in the charcoal industry. Despite the magnitude of this industry much of it is not legal, nor is its production, trading and consumption technologies efficient enough.

¹⁰ CDM Approved Methodologies: UNFCCC Publications

¹¹ TAFORI 2010: Charcoal production activity compromise environmental Compliance, conservation and management strategies in Tanzania: http://inece.org/conference/9/papers/Uiso_Tanzania_Final.pdf

60. On institutions – there is no institutional framework that can coordinate the implementation and replication of the steps of sustainable charcoal locally or nationally. Several institutions interact with different aspects of charcoal; each with its own priorities and interests. Although coordinated interactions among these actors would be beneficial to sustainable charcoal as an incentive for SFM, currently there is no authority or agency providing guidance or technical support on issues such as rules and regulations for handling sustainable charcoal. Consequently, there are no skills, systems or policies for the adoption of sustainable charcoal.
61. Tanzania is however part of the UN REDD program pilot countries and it is creating a capacity and policy enabling environment for a systematic engagement with sustainable forest management carbon systems at a national level. While this program will deal with national level issues, there are still local level barriers that may hinder actual piloting and community engagement, such as local institutions, skills, and organization to ensure governance and compliance monitoring, avoid leakage and secure permanence as well as ensuring equitable distribution of benefits.

Part II: The Strategy

Project Rationale and Policy Conformity

62. The government proposes to resolve these problems through a pilot project that mainstreams Sustainable Forest Management into the production systems in the central part of Tabora Region with activity spreading to Rukwa, Kigoma, and Singida Regions in the west part of the country. The overall Goal of the project is that “Sustainable Forest Management secures ecosystem and biodiversity values while providing a buffer to the Congolian Rain forest, ensuring food security and sustainable livelihoods. To achieve this, biodiversity conservation has to be mainstreamed into economic planning and development, so that agricultural productivity and sustainable livelihoods are improved while simultaneously improving the ecological integrity of the ecosystem, including securing its productivity from negative effects of climate change. The objective of the project is “To enable miombo dependent communities to adopt productive practices that are favorable to biodiversity conservation, reduce carbon emissions from land use change and improve livelihoods”. The project’s immediate focus is an area of 133,400 hectares covering 4 wards (Usinge, Imalamakoye, Mbola, Inyonga) in Urambo, Uyui and Mpanga districts. It will target 12,530 households spread over 28 villages (annex 2 of UNDP Prodoc provides detailed statistics at village level). The objective will be achieved through 3 components that address the barriers with a further component providing project management.

Component 1: Enabling Policy for SFM and up-scaling

63. The project will support efforts by communities and Government to develop policy and legislative instruments in favor of conservation friendly land uses, including formulation of policy and procedures for the regularization of charcoal and better implementation of current biodiversity friendly policies. Building on the policy review undertaken during the PPG, this outcome will ensure stakeholder participation in formulating policy recommendations for the improved harmonization of sector policy in support of mainstreaming SFM friendly practices for better environmental management and economic development. The component will make the considerably progressive environment management policies in the country more effective by removing the policy contradictions that still exist, including contradictions between national policies and local bye laws. More importantly, it will strengthen legislation mechanisms for effective implementation and enforcement at the local level. It will also increase the awareness and understanding of the policies and their implementation mechanisms amongst the local communities and land users, hence promoting implementation. Similarly, it will strengthen local bye laws and the coordination between these and local needs. Specific outputs and activities are outlined below:
64. **Output 1.1: Policy regulatory framework and institutional arrangements support Sustainable Forest Management:** Under this output the project will facilitate a comprehensive participatory review of the current policies, especially the legal and institutional implementation mechanisms to identify weaknesses in both policies and implementation mechanisms and recommendations for improvement. The project will then lobby the relevant authorities for the adoption of the recommendations. To improve chances of the adoption of the recommendations, the project will seek synergies with other national and local level policy initiatives, feeding the “evidence-based” recommendations to the identified processes. Policy recommendations will in particular seek to increase the incentive for better management of Woodlands: The potential of markets for woodland products and services to improve local value-added can increase the incentive for better management of 16

woodlands by CBFM. This potential can be enhanced through various policy and regulatory mechanisms. The mechanisms include simplification of the regulatory regime to reduce transaction costs for poor producers, and developing a framework for providing greater support for producer organizations and user groups. Forest regulatory regimes have acted, in many aspects, as a trade barrier limiting, competition, restricting market entry, keeping producer margin low and consumer prices high. A simplified regulatory regime which favours the capacity of producers to manage woodlands could contribute to expanding market (World Bank, 2008).

65. Specific activities will include: Review CBFM/JFM, NRM, PES and energy policies, identify overlaps, contradictions and formulate recommendations for harmonization; Produce policy briefs and disseminate to lobby for the adoption of recommendations for harmonization; Produce abridged versions of sectoral policies and disseminate to the communities to increase understanding of relevant policies; Link the project to the national PES Legal Framework formulation process to provide inputs based on project experiences; develop Policy and legal framework to address subsidy in alternative energy and appliances; link policy recommendations to ongoing policies initiatives.
66. **Output 1.2: Local level implementation of policies and bye laws improved:** Inadequate enforcement of laws governing NRM, SFM, CBFM/JFM and other environmental processes is a major obstacle to institutionalization of SFM in Tanzania. The project will strengthen local (regional and district) enforcement structures for better coordination and mainstreaming of SFM into national development planning. The project will therefore build on the PPG studies to further review the traditional resource governance mechanisms and identify areas of synergy or contradictions with the national policies. It will then promote the adoption of integrated development planning through training of relevant district staff and participatory planning processes, involving relevant stakeholders at regional and district levels. The Village Environment Management Committees will be particularly targeted in order to identify (and implement) measures to improve enforcement of local environmental management bye laws. Specific activities will include: identification of relevant bye laws, review and identification of areas of conflict, weaknesses and strengths; Formulation of recommendation for improvement, harmonization and effective enforcement; dissemination of results, formulation of approaches for lobbying and lobbying relevant sectors/institutions/communities for adoption; Facilitating integrated district development planning that mainstreams SFM; Training relevant regional/district technical officers, ward and village level leaders on integrated planning that mainstream SFM in a coordinated manner; Identification of traditional institutions in the region and empowering them to support SFM programs; Reviewing and documenting relevant traditional rules and regulations for NRM/SFM and identifying strengths and weakness for NRM governance.
67. **Output 1.3 National policy for regulating sustainable production, processing and marketing of charcoal in place:** In conjunction with output 1.1, the project will facilitate key stakeholders to undertake a comprehensive review of the policies that regulate charcoal at the various stages (from tree to charcoal to kitchen) and identify a policy and legal framework that will promote sustainable charcoal production¹². In addition to legalizing charcoal, the policies will provide guidelines on channeling taxation revenue collection from legalized charcoal production into the creation of a more sustainable industry; as well as guidelines on zoning of land for sustainable charcoal production. They will also provide standards for the production, processing and marketing (such as certification). Finally, they will recognize governance structures (such as charcoal producers or traders associations), etc. specific activities will include review of all existing policies as regards to charcoal, identification of gaps and contradictions in policy, legislation and implementation mechanisms, formulation of recommendations for improvement and lobbying for the adoption of the recommendations.

Component 2. Strengthening skills and capacities for knowledge based CBFM/JFM, integrated soil fertility management and land use planning

68. The project will provide technical support to relevant authorities (municipal, local and central government) for land use planning, enabling productive and conservation initiatives to be zoned according to factors such as ecological suitability, fragility and tenure. It will also assist local communities to develop and apply regulations for natural resource management, such as the specification of zones for extraction and protection of woodlands

¹² This will be coordinated with the GEF SLM project on Kilimanjaro, which has a similar output. Implementation of the Kilimanjaro project is set to begin in 2011.

and NTFPs, the definition of permissible levels of extraction for NTFPs and wood for energy (charcoal and wood fuel), taking into account provisions for regeneration; rules for the use of fire for honey production, hunting and pasture renewal; rules on permissible use of the dambos; and the definition of allocations for extraction between different stakeholders (community members and outsiders) so as to ensure the equitable distribution of accruing benefits. Training and facilitation will also be provided to community-based organizations in order for them to play an increased role in enforcing norms and regulations. This will be backed up by strengthened capacities for resource monitoring among producer groups, community organizations and local governments. Resource users will be provided with skills to implement the integrated resource management plans and to monitor the impacts as well as in the use of monitoring information for adaptive management. This will be achieved through the following outputs.

69. **Output 2.1: Integrated soil fertility management improved to increase productivity and reduce shifting cultivation tendencies:** Under this output, the project will build on the PPG findings to facilitate the formulation and implementation of a comprehensive soil fertility management program, which will increase agricultural productivity sustainably, thereby reducing the need for new fields, and the pressure on the woodlands. Actual activities will include the following: supporting action research on integrated soil fertility package; to be accomplished by identifying and bringing on board all soil fertility stakeholders including researchers for IRA, Tumbi and Ukiriguru to collate and package all information of soils and fertilizer (organic and inorganic) management practices. This information will be mainstreamed into extension package and for ensuring that soil fertility considerations are integrated and adequately addressed by the District Agricultural Development Plans (DADPs). Other activities will be to define and assign roles for each stakeholder in addressing soil fertility management issues. This will be supported by a training program for farmers on appropriate use of soil management practices. The delivery of the training program will be supported by increasing the capacity of local researcher and extension staff to be able to provide the right information to farmers. It will also be complimented by creation of an incentive scheme as well as a financing mechanism on fertilizers where by farmers can borrow some resources particularly for fertilizers.
70. The project will also promote conservation agriculture and agro-forestry. Intercropping food crops with tree stands will be promoted to improve biophysical resilience and promote income diversification. This has been reported as one of the most promising options for helping communities adapt and become resilient to the impacts of climate change. It can also be used to link forest fragments and other critical habitats, as part of a broad landscape management strategy to improve the ecological integrity of wildlife habitats. In addition, agroforestry practices will be integrated into forestry and biodiversity management for the provision of livelihood support products such as timber, woodfuel, fruits, etc., thereby minimizing the exploitation of protected areas.
71. Most respondents claimed that the species issued by the tobacco company were inappropriate and that they had no knowledge of tree planting measures and therefore do not have the skills needed to adopt SWC measures. The project will work with the tobacco companies and the extension service to improve the dialogue between the stakeholders and increase the participation of community opinion in selecting tree species. It will also broaden the tobacco related tree planting drive to include a more comprehensive agroforestry package that meets the needs for improving soil fertility and land productivity as well as provision of wood, timber and other NTFPs (in conjunction with the output on improving enforcement of local level bye laws on environmental management).
72. This work will be complemented by support to crop diversification and use of improved varieties to address two inter-related problems: One, since maize is the staple food crop, nearly all farmers grow it even when their land is unsuitable for maize. Second, although improved varieties of many crops are available, farmers continue to use local land races, compounding the problem of growing unsuitable crops, particularly maize. PPG assessments showed that although land suitability is an important predictor of productivity, decisions on what crops to grow are not based on technological information of land suitability alone. Rather, they are influenced by the fact that productivity does not translate directly into value. Farmers will chose a crop which has a ready market and a promise of good prices, even when that crop is unsuitable. They will also chose a crop-mix to minimize exposure to risks from climate, pest, disease, market fluctuation and others. The implication of this is that even if the land suitability study clearly favors one crop, it may be in the farmers' interests to manage several. The project will build on these findings to widen the assessment and increase understanding of the most 'valuable'

crops in a given locality. This information will then be used to support best crop mixes balancing the technical and socio-economic needs, in particular promoting the idea of local trade.

73. **Output 2.2: Joint Forest and community based forest management supported and at least 500ha of community forest being managed under this regime:** Each village in the pilot wards has a Village Environmental (or Village Natural Resources Committee) that carries the overall management responsibilities of community/village forests. Under this output, the project will build on the PPG findings and the lessons outlined above to strengthen both CBFM and JFM through the following set of activities: Land use planning and zoning of CBFM areas, promoting devolution of rights and responsibilities for woodland management to communities and supporting stronger enforcement of bye laws (in conjunction with component 1), training on NRM, JFM and CBFM for resource users, local communities and technical officers, facilitating re-institution of wildlife corridors and village Ngiritis, and rehabilitation of particularly degraded forest patches. Land use planning is a prerequisite for the success of CBFM. The project will support development of management plans based on management zoning, to achieve the optimal use of the forest resources. The delineation of management zones will be based on an evaluation of miombo woodlands' purpose and significance, its exceptional resource value (e.g. miombo conservation, appropriate uses and management objectives). It will also consider the capacity of land/area to support appropriate uses. When combined with stronger enforcement of bye laws, the Ngiritis will reduce illegal activities in the miombo forest, and increase revenue collection.
74. Some patches of the woodlands, particularly neglected tobacco fields are so degraded that further recovery will not happen without active management. The project will work with the communities to identify such areas to implement a program of recovery. Such a program will involve identification of cost effective rehabilitation techniques, identification of suitable species and techniques for the rehabilitation of the selected pilot sites, demonstration of the importance of water harvesting as the basis for regeneration, monitoring changes in species richness, composition and total density of plants over time in the pilot sites, capturing and dissemination of lessons, and upscaling. In particular, the project will explore the use of these sites for planting quick growing species for sustainable charcoal production (in conjunction with output 3.3). The project will work with academic and research institutions that have conducted similar initiatives such as WWF, ICRAF, etc. In particular, the project will support the careful mix of indigenous and exotic species to overcome the criticism of the current tree planting drive; that is only geared towards meeting tobacco curing needs. In addition, it will support the close supervision to ensure that tree seedlings provided are actually planted and nurtured and that survival rates increase.
75. **Output 2.3: Adoption of energy saving tobacco barns supported to reduce pressure on woodlands:** The PPG studies reported that field tests on impacts of improved tobacco barns showed that on average one acre of tobacco field would, depending on the size of the barn, need about 45m³ per hectare; however, with improved barns the amount could be 14m³ per hectare, leading to a saving of 31m³ of wood per hectare of tobacco cured through improved barns). It also reported that 95% of the tobacco is currently being cured using traditional barns with only 5% being cured using improved barns. The project can lead to at least 40% adoption in the use of improved barns with an average kiln efficiency of 70%. Under these conditions the project would lead to direct emissions reductions of up to 1.7 million tCO₂e (see calculations in the Global environment benefits section). PPG studies also reported that the Tobacco companies operating in the region provide loans to farmers for the construction of improved barns and offer a higher price for tobacco cured by these improved barns (\$2.98/kg versus \$2.39/kg respectively).
76. Despite the foregoing, adoption of improved barns was at a low of 5%. The low adoption rate is due to a complex set of reasons ranging from the fact that some farmers used the improved barns as houses instead of using them for tobacco curing; some farmers reported that the loans were too expensive or that they could not qualify for the loans. The key enabler for non-compliance however, is the fact that there are no penalties for those who do not comply. The project will therefore build on the PPG studies to deepen the understanding of the local conditions and to identify a program of rewards and penalties for enforcing adoption of improved curing barns. It will in particular facilitate stronger collaboration between the tobacco companies and the Division of environment to strengthen the enforcement of environmental bye laws, including formulation of relevant bye laws if needed, to enforce compliance. Specifically, the project will adopt the following measures to increase adoption: **Improve monitoring of compliance with the requirement to use improved barns** – the greatest

barrier to adoption of the improved barns is inadequate enforcement of environmental bye-laws. As a result some farmers obtain loans for such barns from the Tobacco Company but use the barns for other purposes (such as dwellings). The project will work with the Division of environment to strengthen the enforcement of environmental bye laws, including formulation of relevant bye laws if needed, to enforce compliance.

77. **Increase number of farmers accessing loans for the construction of improved barns from the Tobacco Company** – the project will also facilitate access to loans for construction of improved barns from the tobacco company. The TTL (Tobacco Company) is eager to increase the number of farmers curing tobacco with the improved barns since this also yields a higher quality of tobacco (and fetches a higher price). Once the division of environment insists on better enforcement of environmental bye-laws, the project will then work with the environmental and CBFM management committees to monitor farmer compliance; this will provide the guarantee needed by the tobacco companies to provide loans to more farmers.
78. Other measures will include introduction of stiffer fines and penalties for tobacco farmers who misuse the tobacco curing barns or loans provided for the construction of such barns; increasing the price difference between tobacco cured from traditional barns and that cured using improved barns (most likely by lowering the price for the former); increasing technical support to farmers related to better construction and use of improved barns. This will include training a group of technicians in kiln building, management, use and maintenance. These technicians will be availed to farmers at a small fee. These measures will be supplemented by a program of tree planting on farms, with increased enforcement to use fast growing species for tobacco curing instead of the slow growing miombo species. Continued enforcement of this practice will be secured through capacitation of the local CBFM and environmental management committees combined with a program of fines for non compliance.
79. **Output 2.3: Use of updated weather data/information in decision making increased in the pilot wards (co-finance):** Impacts of climate change are becoming evident in the woodlands especially through the variations in weather patterns and its influence on the productivity of the land. The linkages between the changing conditions, climate change and the required adaptation actions are however not clearly understood especially by the local community. Although the use of up to date weather information is critical to adaptation, PPG studies found that farmers rarely use the information provided by the Tanzania weather services, either because it was difficult to reach or was perceived to be inaccurate. The project will work with the government department responsible for weather information to improve the processes for the collection, interpretation and dissemination of weather data to increase its adoption in localized decision making. Specific activities will include the provision of modern automated weather stations (co-finance) as well as updating the old ones to improve reliability of weather prediction and climate change monitoring by Met department (being done through the REDD program); awareness raising on the linkages between climate change and changes to the production systems and the importance of using weather data in production related decisions; Facilitate dissemination of weather information through appropriate means such as cell phones, radio, TV, schools, leaflets, etc.
80. **Output 2.5: M&E and communications systems formulated and being used to support adaptive management:** A participatory M&E system will be designed and implementation facilitated to monitor uptake of SFM and climate change initiatives and their impacts on ecosystem health and improvements in livelihoods. The M&E system will link closely with the Regional Miombo Woodlands Network, in order to monitor the impacts of better management of the Tanzania woodlands on the Regional Level. This is necessary because the miombo project area has in the past acted as a buffer to the Congo rain forests. It will therefore be important to monitor whether the better management causes leakage by transferring pressure on forest resources to the other forests in the region. The M&E system will be complemented by a communication strategy for promoting SFM techniques, adaptation and ecosystem, through dissemination of lessons and good/best practices. The baseline information collected will be used to identify indicators of ecosystem health and changes in livelihoods. Both the monitoring and communication strategies will have an appropriate feed-back mechanism from which ideas will be identified for improving on the process. Activities will include participatory identification of indicators, setting up monitoring systems, collecting data and analyzing it to identify project impacts and lessons for adaptive management.
81. Other activities will include the establishment of an SFM regional communication section within the project linked to the Regional Information Officer; undertaking a stakeholder assessment and matching the₂₀

information needs and dissemination avenues to the various stakeholder groups; developing communication messages suited to the various stakeholder groups and disseminating lessons/best practices accordingly, through radio programs, newspapers, websites, internet, seminars, workshops, demonstrations (Farmer field school techniques), etc. monitoring dissemination, uptake and impacts of the communication; Using feedback for adaptive management of the project and the communications strategy.

Component 3: Adoption of Sustainable charcoal and energy switch reduce pressure on woodlands

82. To facilitate large scale improvements in charcoaling processes, the project will facilitate the adoption and use of a combination of legal, institutional and financial instruments to encourage adoption of sustainable charcoal, uptake and use of efficient technologies and energy switch, as part modernization of the charcoal industry in Tanzania. It will therefore ensure that charcoal producers and resource owners in the pilot wards are provided economic incentives for sustainable charcoal through markets and sale of ecosystem services (in conjunction with component 4), that key stakeholders strengthen capacities for sustainable charcoal (in conjunction with outcome 2), that technology for efficient production, processing and consumption of charcoal is adopted locally (in conjunction with outcome 2), and that local level governance to support sustainable charcoal is improved (in conjunction with outcome 1). The project will collaborate with similar initiatives (on charcoal) to lobby for a stronger legislation for ensuring the adoption of technology for efficient production, processing and consumption nationally. Specific outputs are described below:
83. **Output 3.1: Support to sustainable charcoal production delivered:** Under this output, the project will promote the adoption of sustainable charcoal concept in the pilot wards, which produce up to 10,000 tons per year. It will therefore facilitate the formation of charcoal associations and the provision of skills to adopt improved charcoaling technologies (such as improved kilns, improved processing and packing). The project will facilitate development of the extension package for managing the miombo woodlands as a source of charcoal, borrowing from experience of countries such as Sudan and Madagascar that have a sustainable charcoal policy. It will then facilitate delivery of the extension package in pilot wards and formulation of a strategy to expand training in the other districts in the two regions. In addition, the project will support the Forest Department and the Renewable Energy institute (TATEDO) to train officers of other relevant departments on sustainable charcoal. It will support District governments to lead better planning of the charcoal business through the District Environment Plans (DEPs) and to feed into national planning processes including ensuring woody biomass (on private/public lands) are valued appropriately in the national accounts.
84. To address local level governance for charcoaling, the project will facilitate review of traditional land and resource management institutions and their suitability for providing governance for sustainable charcoal production (in conjunction with outcome 1). Majority of the charcoal producers do not own the trees/land they use for charcoal production; charcoal producers Associations may therefore be separate from Forest Associations. Building on the lessons learnt from the Kilimanjaro SLM project (which has an outcome on sustainable charcoal), this output will work through charcoal associations to increase awareness of producers on their rights and responsibilities under the legislation. The charcoal associations will also be vehicles for disseminating information on better conversion methods and sustainable forest management principles. In conjunction with component 4, the project will facilitate access to loans to invest in better production technologies. Specific activities will include supporting local governments and communities to review existing local regulations and to make them more accommodating of sustainable charcoal production (ordinances and byelaws), strengthening capacity for the implementation of the revised regulations by both communities and local government.
85. **Output 3.2: Sustainable charcoal linked to carbon finance (co finance):** As explained above, sustainable charcoal is carbon neutral because the carbon emitted during production and consumption can be sequestered by trees that are planted, or allowed to continue growing (by coppicing instead of felling). Thus taking traditional earth kilns as a baseline, every one ton of sustainable charcoal produced offsets nine tons of carbon dioxide (or nine units of CO₂) (ESD 2006). Given that the pilot wards produce up to 10,000 tons of charcoal per year using unsustainable methods, a switch to sustainable methods can mitigate up to 13,600 tons per year (assuming only a 40% adoption rate and a 60% efficiency in the use of improved practices); this would lead to 40,800 tons in three years). At current prices in the informal Verified Emissions Reductions (VER) markets of US\$ 5 per ton of CO₂, the pilot wards could potentially earn up to USD 204,000 in three years from the sale of carbon credits,²¹

in addition to the sale value of charcoal. The project will work with institutions with expertise on carbon finance such as ICRAF and the Energy for Sustainable Development (ESD, now CAMCO) to provide capacity and methodologies for measuring carbon stocks and monitoring and verifying trends. Specific activities will include development and implementation of an incentive package for the adoption of sustainable charcoal, conducting market research on the charcoal production and consumption chain, setting up and supporting operations of the charcoal associations, establishing and maintaining woodlots for charcoal production, particularly in conjunction with agroforestry practices on croplands, organizing and supporting charcoal producers and landlords into market oriented associations, research/assessment on species suitability for woodfuel, undertake an assessment of the factors affecting tree husbandry (access and control/ownership, labor availability, land tenure, cultural issues); define and apply criteria for selecting local entrepreneurs to establish tree nurseries and facilitate start up (acquisition of seedlings, training on tree husbandry, etc.); facilitate establishment of communities, individuals and institutional woodlots; facilitate formation of charcoal producers associations and provide them with training on sustainable harvesting for improved charcoal production.

86. Marketing of carbon credits can however be tricky, especially where aggregation will be required. The project will facilitate formation of an institution to support the charcoal associations to sustain the adoption of principles agreed during the project implementation, and to be a vehicle for the continued negotiation and sale of carbon credits. The institution will have a governance structure likely to constitute 4 or 5 trustees representing different Government, UNDP GEF, NGOs and the local communities. This institute will be responsible for aggregating emissions from the various charcoal association groups and spearhead transaction of carbon services from rural areas. It will therefore set the terms and conditions for exchange of carbon services, oversee the administration of payments to communities and farmers, oversee the provision of technical services and monitoring, hold technical service providers and finance administrators accountable to project participants, and commercialization of carbon.

87. **Output 3.3: Institutional set up for to coordination the transformation of the charcoal industry facilitated:** Charcoal issues are currently spread between several ministries. The transformation of the charcoaling sector from the current unregulated, low source of government revenue to a more streamlined sector providing an incentive for sustainable forest management will require stronger coordination. The project will facilitate the formation of a Regional Charcoal Coordination Body, which will eventually facilitate the formation of a national body. Working with all relevant stakeholders, particularly Forest Division and the Energy Department, the government body will spearhead the “cleaning of the charcoaling industry. In particular, it will identify ways of improving revenue collection from taxation of charcoal along the market chain. It will also promote awareness of the impacts of unsustainable charcoal as well as the potential positive impacts of adoption of cleaner more sustainable methodologies. It will undertake the following:

- Promote national level improvement of charcoal production, transportation and marketing promote community and private sustainable management of woodlots for charcoal production;
- Set up a certification system designed to differentiate sustainable charcoal from traditional charcoal.
- Monitor the industry and provide policy guidance on how to improve the sustainability of charcoal as an important source of energy;
- Devise an effective method of charcoal revenues collection and plough back some of this revenue for sector’s development.
- Promote large scale use of more efficient kilns combined with more efficient stoves.
- Organize and empower small scale charcoal producers to use efficient kilns and form marketing associations.
- Support farmers within peri-urban and nearby rural areas to establish woodlots for charcoal production.
- Ensure sustainable management of charcoal production from general and village forests.
- Demarcation of the forest into annual blocks indicating clearly the allowable sequence of harvesting cycles.
- Promote use of by-products of sustainable timber and agricultural production.

88. **Output 3.4: Mitigation through improved energy switch** - The Tabora and Rukwa regions are host to several public institutions such as boarding schools, hospitals, prisons, and university campuses. Collectively these institutions consume huge quantities of woodfuel and charcoal annually. At the same time, the vast majority of²²

human waste is discharged untreated into the environment, contributing to methane emissions. There is a huge potential for substitution of energy source from wood to methane from human waste, leading to mitigation. The project will therefore facilitate the switch from wood/charcoal to methane in public institutions. In doing so, it will link these public institutions with the National UN REDD program (UNDP/UNEP/FAO), and the UNDP MDG Carbon initiative, which will assist them to develop a project to improve energy efficiency through conversion of human waste to methane combined with adoption of improved kilns and stoves. Working together with the rural energy institute, the MDG Carbon will help the project to replicate a project in Rwanda, which has successfully developed a similar initiative for boarding schools. The MDG/Rwanda project is providing appropriate energy solutions to the schools by pairing a solar-powered water treatment plant with an integrated biogas system that converts human and kitchen waste into methane for cooking and fertilizer for gardening. Kitchen stoves are equipped with supplementary high-efficiency wood burners to minimize the consumption of non-renewable fire wood required as a supplement to the primary methane fuel. The Rwanda project has signed carbon sale agreement for and will earn carbon credits for sale in future.

Component 4: Markets and technology support expansion of BD friendly alternative income generating options to reduce pressure on agriculture and natural resources and increase income in the pilot wards:

89. Deforestation in Tanzania is fuelled by limited livelihood options available to local farmers, coupled with low levels of investments into SFM due to limited access to credit. Devolution of rights and management responsibility to communities need to be supplemented by tangible benefits from the forest in order to provide incentives to protect the resources/miombo and to manage it sustainably. Success in forest management devolution will therefore be sustained when coupled with creating broader rural livelihood opportunities. In addition to linking sustainable charcoal to carbon finance (component 3), the project will improve local economic development through identification of viable income generating options such as food processing, niche markets for specialized NTFPs, increasing markets and profit margins of currently traded products, etc. Specific outputs are described below.
90. **Output 4.1: High value non-timber forest products (NTFP) and agribusiness identified and developed (including markets):** The potential for the development of initiatives that develop NTFPs such as mushrooms, honey and edible insects is significant in miombo woodlands. The woodlands already support some income generating activities but are plagued with quality issues, inadequate financing and inability to reach lucrative markets. Information gathered during PPG from Itebulanda, Mbola and Maboha villages showed that there is potential to build BD friendly livelihood support income generating activities such as horticulture, poultry keeping, dairying, soap production, processing of cooking oil from sunflower, groundnuts, simsim and oil palm, establishment of tree nurseries, honey and beeswax processing, candle making from beeswax, grain milling, godowns construction, formation of wildlife management areas (WMAs) clothes sawing marts, fish (processing, preservation and transportation). BD friendly products from these activities include: vegetables fruits, poultry meat and eggs, milk and butter, soap, cooking oil, seedlings, high quality honey, lighting candles, maize flower and husked rice, storage facilities, garments, dried and frozen fish, and meat and money from WMAs. Markets for the products were shown to be available in the villages, but they were inadequate, and will need to be supplemented especially when production is accelerated.
91. The project will build on these PPG findings¹³ to identify further NTFPs that can support income generation and support adoption. It will also build on the positive linkages and lessons generated through the highly successful GEF project in Kenya, which demonstrated that financial incentives (provided through commercial insects) delivered improved livelihoods as well as global environmental benefits¹⁴. Proposed Activities include: Assess Income Generating Activities (IGA) - including NTFPs and agri-business and select best bets for piloting (mopane worms and locusts pizzas, fish farming, bee keeping, handcrafts, cultural tourism, eco-tourism, indigenous poultry farming etc); Undertake value chain analysis to identify potential markets and factors hindering successful adoption; Undertake market survey (nationally, locally, regionally, internationally) to identify regular and niche markets for specialized products from the miombo woodlands such as mushrooms and

¹³ Annex 4 outlines potential NTFPs from the four pilot wards

¹⁴ Terminal Review (2008) -- UNDP/GEF Developing Incentives for Community Participation in Forest Conservation Through the Use of Commercial Insects in Kenya (CIP)

edible insects, etc. and the market needs; Domestication of high value non-timber forest products e.g. mushrooms, medicinal plants; Provide market information by establishing linkages between identified markets and specialized producers (and others) to disseminate market information; conduct training needs assessment and deliver training and other support to improve local capabilities to engage in business; facilitate formation and operationalization of producer cooperative societies to act as channels for marketing of agricultural products and purchasing of farm inputs in bulk (thus reducing transport costs); and, support compliance with the certification requirements for honey production, processing and sale. Tanzania already has a certification protocol in place for honey sold outside the country. However, many producers do not comply with the strict rules of certification and are therefore not accessing this lucrative market.

92. **Output 4.2: Access to financial services increased to support adoption of agribusiness and trade in NTFPs as well as use of inputs for agriculture:** Unlike other rural landscapes in Tanzania, farmers in the pilot districts have some level of interaction with financial institutions and cooperatives. However, these are only dedicated to the cash crops, largely tobacco. Under this output the project will facilitate broadening of micro-finance institutions’ (MFI) engagement in the region’s agricultural, particularly through cooperatives. PPG findings indicated a high level of awareness amongst community members of the critical role played by cooperatives and access to credit in improving local production and economic development. The project will build on this awareness and the presence of several credit schemes to motivate financial institutions to develop financially viable products that suit the specific needs of the farmers, beyond tobacco. The project will also undertake a capacity needs assessment and design a capacity building programme to ensure that agriculturalists and local entrepreneurs and their local institutions have the basic capacity needed to engage with the financial service providers. Specific activities will include an assessment of needs for micro-finance and credits, identifying current challenges to both providers and potential beneficiaries, identifying potential sources and negotiating rules of engagement, supporting establishment of viable packages and piloting provision to selected community groups and individuals, monitoring uptake, use and payment, clearly distilling lessons, facilitating use of the lessons to establish a viable and thriving local level financial markets.

Risks and mitigation factors

Table 4: Risks and Mitigation Actions

Detail and Severity	Mitigation
Pressure from continued influx of immigrants causes greater damage to the woodlands than can be fixed through SFM - M	The conflicts that generated a huge influx of immigrants in the region have abated, and it is now less likely that the region will experience another wave of immigrants. However, by strengthening enforcement of local environment byelaws, the project will enhance the adoption of improved SFM and biodiversity friendly practices by existing or new immigrants, which will increase productivity of the land, reducing further need for clearing additional land just to maintain food security.

<p>There is a risk that the current political will for long-term SFM processes is overpowered by short-term economic considerations largely driven by easy availability of cash incomes from the sale of tobacco and charcoal in the face of low incomes from alternative BD friendly income generating activities in the face of local level poverty – M</p>	<p>This risk is mitigated by activities aimed at reducing the impact of tobacco and charcoal on deforestation as described below: Reducing deforestation driven by the tobacco industry</p> <ul style="list-style-type: none"> i) Increasing capacity for enforcement of SFM friendly practices in tobacco farming including the adoption of efficient tobacco curing barns and use of planted fast growing species over slow growing miombo species in tobacco curing. It is noted that the tobacco company requires farmers to grow 500 trees per hectare of tobacco cultivated, makes available credit for the construction of improved barns, and, pays a higher price for tobacco cured using the improved barns. The lack of enforcement of environmental laws and bye-laws and therefore lack of an reward and punishment regime has reduced incentives for general compliance. ii) Building capacity and generating political support for stronger enforcement of environmental policies (particularly bye-laws) at the local level; iii) Increasing incomes from BD friendly options such as horticulture, trading in sustainably harvested NTFPs, increasing crop production from soil fertility management practices; iv) Broadening access to credits and micro-finance to support other production process (currently credit is only available for the production of tobacco, and not for the support of BD friendly alternative income generating activities); v) Reducing deforestation driven by charcoal production: vi) Support adoption of sustainable charcoal (definitions in para 53 onwards) by providing skills and institutional organization required for effective adoption of the concept; vii) Support to adoption of methane instead of woodfuel for cooking in public institutions in Tabora and Rukwa; viii) Linking sustainable charcoal producers to carbon markets (via capacity and institutional arrangements required for long-term engagement)
<p>Increase in prices could lead to overharvesting, but only if it is not managed within the sustainable harvest content – L</p>	<p>The project will increase capacity for implementation of bye laws which will mitigate the risk of a price increase without considerations for sustainability</p>
<p>Climate change may reduce the effectiveness of SFM technologies – M</p>	<p>The project is building capacity for adaptation to climate change and ensuring that the country mainstreams adaptation in national policy. In addition, the ability to predict weather and to disseminate weather information will be increased. The disaster risk reduction strategy will also be revised to include responses related to adaptation.</p>
<p>The impact of the civil servants reform undertaken in the 90's was to reduce number of technical staff throughout the country. Tanzania is still suffering from inadequate staffing, particularly in some regions. There is a risk that this low staff numbers will be compounded by high staff turn-over, negatively impacting the rate of implementation – M</p>	<p>The project strategy for boosting capacity in the Regional and Local governments will be to work with other relevant institutions, such as CBOs. The project will cultivate partnerships with institutions that can provide additional capacities (such as Institute of Resource Assessment (University of Dar es Salaam), etc.</p>
<p>Livestock movement could continue in the project area causing more degradation – L</p>	<p>The risk will be mitigated through strengthening of planning and local level governance; which will have capacity for monitoring livestock movements and to ensure that these movements are coordinated and in line with sustainable resources management.</p>
<p>Better management of the woodlands in western Tanzania might cause leakage by transferring the pressure on rain forests in the Congo Basin.</p>	<p>The project does not have the resources to mitigate this risk effectively; however, it will link its monitoring to the Regional Network on Miombo Woodlands. Monitoring information will be shared with the region through this network, and used to adapt management regimes.</p>

IX) CONSISTENCY OF THE PROJECT WITH NATIONAL AND PRIORITIES/PLANS:

93. **Eligibility for GEF Funding:** Tanzania ratified the Convention on Biological Diversity on 8th March 1996 along with the Framework Convention on Climate Change. Tanzania is eligible for technical assistance from UNDP. The UN Convention on Biological Diversity (CBD) considers mainstreaming of biodiversity friendly practices in the productive sector as an important supplement to the protected areas, since more than 50% of the biodiversity exists outside protected areas. The Global Environment Facility (GEF) is the main funding mechanism for providing assistance to developing countries to facilitate them to achieve the targets set out within the CBD – to which they are signatories. This project will address the 2010 target related to the conservation of the world’s forests, through SFM.
94. **Fit with GEF Focal Area Strategy: Fit with GEF Focal Area Strategy:** The project will contribute to BD SO 2 and SFM Strategic Objectives 1 and 2. These are ‘To mainstream biodiversity in production landscapes’ (BD SO2), to reduce pressures on forest resources and generate sustainable flows of forest ecosystem services (SFM SO 1) and to strengthen the enabling environment to reduce GHG emissions from deforestation and forest degradation and enhance carbon sinks from LULUCF (SFM SO2). It will also contribute to Climate Change Strategic Objective 5: Promote conservation and enhancement of carbon stocks through sustainable management of land use, land-use change, and forestry.
95. An SO2 approach is appropriate given the high levels of dependency of local populations on natural resource use, ruling out the establishment of extensive areas of exclusive protected areas, and the fact that threats to BD stem from production activities. The project further adopts SP4 and SP5 strategies thus: Strengthening the Policy and Regulatory Framework for Mainstreaming Biodiversity, by modifying how the Government interacts with local communities in support of BD friendly options, including the incorporation of BD criteria and regulations into programmes of technical, financial and marketing support by providing information to decision makers on the potential benefits that this could generate; and strengthen governance structures in local communities and capacities in local and national Government for planning and regulating resource management (SP4): and, Fostering markets for biodiversity goods and services by assisting producers to develop viable small business with market access for BD-friendly forms of production (SP5). Collectively, these results will reduce pressure on the woodlands and reduce deforestation. This will increase the connectivity of the biome, contributing to restoration of habitats for biodiversity. This will also improve carbon storage capabilities of the woodlands, enhancing ecosystem services to climate modulation.
96. GEF value-added and **INCREMENTAL REASONING** :
97. **Baseline:** There are quite good number of projects that have tried to introduce or start new income generating activities in Miombo woodland ecosystem or in similar conditions. The Ministry of Natural Resources and Tourism, with support from UNDP, JAPAN, the Earth Institute of Colombia and Jane Goodall Institute is implementing Millennium Village Program, an income generating project in the Masito-Ugalla ecosystem. With a total budget of nearly US\$ 37 million, the project aims to increased crop production, reduced encroachment of forest and reduce reliance of communities on tobacco income. The initiative involves 15 villages in the Malagasi – Moyovozi Ramsar Site (SIMMORS) and 14 villages in Kigoma and Urambo Districts. Lessons emerging from these NRM based projects show that new income generating activities in Miombo woodland ecosystem are possible and can be an important source of incomes and livelihood, but need a great deal of support with improving product identification, processing (quality) and marketing (accessing lucrative markets).
98. Additional evidence from the Millennium Village showed that improving soil and water management combined with use of better seeds and fertilizers, and supported by a more empowered extension service increased the yield of maize by 3 to 4 times per acres. Such achievement is also associated by provision of subsidies on agricultural input in particular seeds and fertilizer to a total of 5,950 farmers involved in the project.
99. The World Bank and DANIDA are supporting better agriculture production in Tanzania to alleviate poverty. This is being done within the Agriculture Sector Development Program (ASDP), which is a US\$ 2.5 million project with an objective of building community ownership and district capacity for increasing soil fertility and crop yields. This follows a recently concluded World Bank program on Participator Agricultural and Empowerment (PADEP). With a budget of nearly US\$ 2.5million, the program used community based projects,

improvement of livelihoods and environmental conservation, capacity building to increased food and income at community level.

100. The Tanzania Leaf Tobacco Company (TLTC) is supporting tree planting by tobacco farmers, through the Association of Tanzania Tobacco Traders (ATTT) and Alliance One Tanzania Tobacco Limited (AOTTL). The company has a Tree Planting policy, which requires tobacco farmers to plant at least 500 tree seedlings per ha, which they are supposed to use for tobacco curing. The company works through the farmer cooperative societies which grow tree seedlings sold to the farmers at Tsh. 100/- per seedling. The company also grows seedlings for fast growing species such as *Cacia siamea*, *Albizia rebekei*, *acasia craskapa* *Senna siamea*, *Acasia nilotica*, through “Seed Farm”, a subsidiary which also provides fertilizer to tobacco farmers at subsidized prices. This work is supported by ICRAF through the Tumbi Agricultural Research centre. In addition, the company provides loans for constructing brick kilns, which have better efficiencies in tobacco curing.
101. PPG studies however revealed that the survival rates of the seedlings is very low as very few as farmers were interested in tree planting. It was reported that farmers interests was in food crops and quite often only took the tobacco package in order to access the inputs, which they subsequently divert to food crops. In addition, farmers rarely use the exotic tress for curing tobacco, even where such mature trees occur, claiming that they were less efficient than indigenous trees.
102. An analysis of the baseline shows a suite of activities that will continue to support participatory forest management to improve food security through the extension service and particularly by non-government players. However, these baseline activities will fail to address the persistent barriers described in section A of this PIF that impede the uptake of improved SFM that simultaneously mainstreams biodiversity conservation and improves the ability of the miombo to support better livelihoods thereby providing a buffer zone to the Congolian rainforests. Without the GEF alternative, the current unplanned, uncoordinated expansion of agriculture and over harvesting of wood resources without adequate consideration for sustainability or adaptation to climate change will continue to have a deleterious effect on the state of biodiversity and livelihoods, and the buffering zone effect will be lost, along with the ability of the woodlands to sequester carbon.
103. The short term gains in increased food productivity obtained by farmers coupled by the increased influx of immigrants from overpopulated areas and the seemingly “cost-free” wood to the tobacco industry and charcoal production will continue to drive the over-exploitation of the miombo woodlands as long as the policy and capacity barriers are not addressed. Without the GEF project, the productivity of the miombo woodlands will not be protected against the negative effects of the changing climate. Perhaps even worse, the policies on decentralization and participatory forest management will remain the theoretical basis for the conservation and sustainable use of forest resources as weak capacities coupled by weak political support will hinder its implementation. In the alternative scenario, the GEF project will remove the barriers to enable adoption of sustainable forest principles and practices by building capacity for SFM, improving livelihoods through NTFPs, increasing capacity for adaptation to climate, building political support for upscaling and mainstreaming SFM and CC friendly policies. This will increase the ability of the ecosystem to provide services such as biodiversity conservation, water catchment, sequestration and support to livelihoods.

Expected Global and National Benefits:

104. The miombo woodlands provide a wide range of ecosystem goods and services to local, national and global communities: locally they provide raw materials for both the rural poor who depend on forest products to meet basic livelihood needs, and for industry’s demand for timber and non-timber products. They also provide energy for the local people as well as people living in the towns and cities (in the form of wood and charcoal). They also provide soil formation services as well as water catchment (in dambos) (more detailed description of global significance is provided in section 1 – paragraphs 9-15). As reported by Williams et al¹⁵ (2008) re-growth of miombo woodlands after clearance for agriculture is very slow rarely recovers the defining miombo species, even in fields that had been abandoned for over 25 years. Where fire disturbance on the abandoned farms is a factor, then more fire resistant species may dominate instead. This means that conserving existing miombo woodlands is vital for maintaining the defining species, and their rich associated fauna.

¹⁵ Williams et al: Forest Ecology and Management 254 (2008) 145–155

105. *Carbon storage and regulation of the global climate:* Although miombo woodlands have lower wood carbon storage than other tropical forests, they are nevertheless a significant storage due to the extensive nature of the biome. As explained in the background, recent studies confirmed that the woodlands provide considerably high carbon stocks at about 60-80 tons per hectare¹⁶ (average for all strata), and that soils in undisturbed natural miombo woodlands contained considerably higher carbon stocks than disturbed soils or vegetation (stems), storing more than 100 t C ha⁻¹, whereas no abandoned farm soil exceeded 74 t C ha⁻¹, and no stem wood stock on abandoned farms exceeded 33 t C ha. They also found that recovery of soil and vegetation carbon stock after clearance was slow; while recovery of stem carbon was evident after a few decades, the soil stocks do not accumulate following abandonment over a few decades, and no abandoned farm soils exceeded 74 t C ha⁻¹.

106. The project will build capacity for mainstreaming SFM in order to conserve remaining woodlands to protect soil and vegetation carbon. To ensure that local communities can meet agricultural needs without permanent loss of woodlands, the project will provide approaches to increase crop output at low cost, e.g. agro-forestry and intercropping, combined with adoption of sustainable alternative income generating activities, which are expected to reduce the pressure on the natural resources and reduce deforestation. By reducing deforestation in over 133,000 hectares, the project will contribute to the maintenance of the carbon stock already held by the miombo woodlands. In addition, adoption of improved tobacco curing barns and sustainable charcoal and energy switch by public institutions will result in considerable emissions reductions (ERs). Direct ERs from adoption of improved tobacco curing barns over a baseline of 8,000 hectares of tobacco in the pilot villages is expected to be up to **1,703,680tCO₂e over ten years with a cost abatement unit of \$0.50/tCO₂e**, which is very cost effective (see calculation below). ERs for the adoption of sustainable charcoal and adoption of methane in public institutions will be calculated during the inception period and reported at MTE. This is because their calculations require further data to be gathered during inception, including numbers and types of improved charcoal kilns, numbers of charcoal producers who will join the sustainable charcoal producers associations, etc. It is however noted that these two are not financed from CCM.

Calculations of emissions reductions under the Miombo Woodlands SFM Project

107. Direct emissions reductions will result from adoption of improved kilns in the 8 pilot villages: It is however noted that the guidelines provided in the GEF Emissions calculator manual relate to ERs from fossil fuel use and electricity, and are difficult to apply in biomass related projects. A simpler calculation was used as explained step by step below. Direct emissions were assumed to be those resulting from adoption of improved tobacco barns in the 8 pilot villages.

- For tobacco curing, the facts are that:
 - 95% of the tobacco currently being cured using traditional barns with wood harvested in the woodlands (hence not-sustainably harvested) while the remaining 5% is done using improved barns;
 - On average one hectare of tobacco field needs about 45m³ of fuel wood per hectare; however, with improved barns the amount could be 14m³ per hectare, leading to a saving of 31m³ of fuel wood per hectare of tobacco cured through improved barns;
 - The project can lead to at least 40% adoption in the use of improved barns with an average of 70% efficiency (hence each ton of tobacco cured with improved barns leading to a saving of 21.7m³ of wood, not the 31m³ that can be obtained under ideal conditions);
 - In Tabora region, there was about 25,000 ha of tobacco by 2010, 8,000 of it in the 8 pilot villages;
 - While UNEP/WCMC Carbon and Biodiversity Demonstration Atlas of 2008 reported that the miombo woodlands of Tanzania harbor about 60-80 tons of carbon per hectare of woodland (average of all strata), calculations are done using the lower estimate by Williams et al (2008)¹⁷ of 19 tons per hectare in wood stem carbon.
 - **The specific gravity of trees in the miombo woodlands is estimated to be 0.66¹⁸**
 - The volume of harvestable wood for charcoal in miombo woodland was estimated to be 35 m³ per hectare in Eastern Tanzania¹⁹; this is assumed to be the same quantity that is harvestable for tobacco curing;

¹⁶ Carbon and Biodiversity: A demonstration Atlas. UNEP WCMC 2008.

¹⁷ Williams et al: Forest Ecology and Management 254 (2008) 145-155

¹⁸ Malimbwi, R.E. et al. 1994. Estimation of biomass and volume in Tanzania. Journal of Tropical Forest Science 7(2): 230-242 28

- The lifetime of an improved tobacco curing barn is more than 20 years with regular maintenance; however, a value of 10 years will be used to discount potential losses from poor maintenance.

Direct emissions from outcome 2 (calculated in three steps):

Step 1: Emissions per year under Business as usual in the 8,000 hectares of tobacco being produced in the 8 pilot villages:

- Quantity of wood needed to cure 95% of 8,000 ha of tobacco $= (0.95 * 8,000) * 45 = 342,000 \text{ m}^3$
- Quantity of carbon from 342,000 m^3 of wood $= 342,000 * 0.66 = 225,72 \text{ metric tons per year}$

Step 2: Emissions with 40% adoption of improved barns operating at 70% barns (kiln) efficiency (meaning that 40% of the 8,000 hectares of tobacco is cured at 23 m^3 per ha²⁰ instead of 45 m^3 per ha):

- Quantity of wood required to cure 40% tobacco cured at 23 m^3 per hectare $= 0.4 * 8,000 \text{ ha} * 23 \text{ m}^3 / \text{ha} = 73,600 \text{ m}^3$ of wood (b);
- Quantity of wood required to cure the other 55²¹% of tobacco still under traditional barns $= 0.55 * 8,000 \text{ ha} * 45 \text{ m}^3 / \text{ha} = 198,000 \text{ m}^3$ of wood (c);
- Total quantity of wood used to cure tobacco with the project $= b + c = 73,600 + 198,000 = 271,600 \text{ m}^3$ of wood
- Quantity of carbon from 271,600 m^3 of wood $= 271,600 * 0.66 = 179,256 \text{ metric tons of carbon per year}$

Step 3: Lifetime tons of C saved

- Benefit in one year $= 225,720 - 179,256 = 46,464 \text{ metric tons per year}$
- Benefits over ten years converted from C to CO₂ units $= 46,464 * 10 * (44/12) = 1,703,680 \text{ tCO}_2\text{e}$
- ICER (TDA) becomes $1,703,680 * 0.5 = 851,840 \text{ tCO}_2\text{e}$
- The Indirect ERRs will range from 851,840 to 5,111,040 tCO₂e

108. Direct Post Project CO₂ Emission Reductions – there are currently no plans to set up a revolving fund to financially support further expansion of tobacco curing barns; however, the possibility will be explored during the project inception period, and if adopted, the ERs will be revised in the inception report and reported at mid-term review.

109. The Unit Abatement Cost (UAC) for this project $= 855,000 / 1,703,680 = \$0.50 / \text{tCO}_2\text{e}$. The above emissions reductions figures could be higher if the soil carbon lost due to conversion of woodlands to farmlands was taken into account. As explained in other sections, this figure would be significant given that soils have significantly higher carbon than wood stem in the miombo woodlands, and that on average converting woodlands to agriculture leads to 23% reduction in soil carbon (Williams et al (2008)²². Tanzania is part of the UN REDD program and has reserved over 20% of its territory as forest reserves, game reserves and national parks, thus acting as both an area of storage and as potential sequestration of Carbon dioxide²³.

110. *Biodiversity*: At the global level, forests contain as much as 90% of terrestrial biodiversity, with tropical forests being particularly important in terms of both species richness and their concentration of endemic species (Brooks *et al.* 2006). As described in the background section, the miombo woodlands are biologically rich and diverse with up to 8500 vascular plant species, 4,590 them endemic, together with 35 endemic mammals, 51 endemic birds, 52 endemic reptiles, 25 endemic amphibians and an unknown number of endemic invertebrates. The antelopes are especially diverse and include Eland, Impalas, Gazelles, Oryx, Gerenuk, and Kudu. Other important animals include Buffalo, Wildebeest, plains Zebra, Rhinos, Giraffes, Elephants, and Warthogs. Up to sixteen grazing and browsing species may coexist in the same area. The species-rich herbivore trophic level also

¹⁹ Malimbwi R.E. and Zahabu E., Faculty of Forestry and Nature Conservation, Sokoine University of Agriculture, Tanzania -- The analysis of sustainable charcoal production systems in Tanzania <http://www.fao.org/docrep/012/i1321e/i1321e10.pdf>

²⁰ It is unlikely that tobacco farmers in the neighboring villages will achieve 100% efficiency in the use of improved barns; a 70% efficiency would reduce wood requirements from 45 m^3 per hectare to 23.3 m^3 per hectare – calculated by subtracting 70% of 31 from 45; thus $= (45 - (.7 * 31)) = 23.3$ – rounded up to 23

²¹ Discounting the 5% who are already using improved barns)

²² Carbon and Biodiversity: A demonstration Atlas. UNEP / WCMC: 2008: Williams et al, 2008: Forest Ecology and Management 254 (2008) 145–155

²³ Ministry of Natural Resources and Tourism, 2001

supports a diverse set of carnivores, including cats (lions, leopards, cheetahs, servals), dogs (jackals, wild dogs), and hyenas.

111. The Malagasi basin is home to more than 20,000 water birds, estimated to constitute more than 1% of the individuals of several water bird species, including the shoebill *Balaeniceps rex*, the Wattled Crane *Grus carunculatus*, the *Ardea goliath* and the *Egretta alba* (2%) (SIMMORS, 2000; URT, 2001). Although most birds are reported to be residents exhibiting restricted movements, the region hosts long distance migrants, which usually come in the wetlands during summer and return to the north at the end of winter, including the white pelican and many other important birds. By mainstreaming SFM and strengthening JFM/CBFM in the four pilot wards, this project will reduce the pressure on the miombo woodlands and improve the conditions for biodiversity conservation in over 133,000 hectares of productive landscapes. This area is expected to be doubled through upscaling.

112. *Tourism* – The miombo woodlands aesthetic qualities are the basis of an important and globally known tourism industry, representing a significant and substantial revenue development opportunity for local economies. Benefit flows to communities from tourism are still too low to provide an incentive for conservation, despite the spread of ecotourism.

Table 11: Benefits Summary

Benefits	Baseline	Alternative	Increment
Global benefits	Weak enforcement of existing regulations and ineffective management of miombo woodlands and related wetland areas. GOT has limited capacity to ensure continued flow of ecosystem goods and services from the miombo woodlands (including biodiversity conservation, carbon sequestration, provision of aesthetics for tourism, soil formation and fertility)	Agreed management strategy that provides a framework for woodlands conservation action by all players Joint-management resulting in increased role of local communities in managing forest resource use and access. Communities have incentives to regulate forest use and access for their own benefit.	Woodlands management strategy focuses efforts by many stakeholders to solve conservation and livelihood conflicts/problems in the miombo woodlands. Collaborative management results in improved management and monitoring of biodiversity, reduction in emissions and other forest resources. Ecological stability of woodlands is increased; biodiversity and the climate are less threatened.
National and local benefits	Open access to the miombo woodlands is endangering their ecological integrity, their functions and ability to deliver ecosystem goods for local economic development (soil fertility, wood, poles, biodiversity, watershed protection and indigenous cultural uses). Communities within the woodlands are poor and use unsustainable farming and forest resource harvesting practices. No ecosystem based approach to adaptation, hence increased vulnerability to the effects of climate change, on already vulnerable community	Social transformation of forest woodland communities through effective partnerships in co-management of forests and increased security of resource tenure. Enhanced alternative livelihood options reduce unsustainable use of land and forest resources. Increased access to tradeable NTFPs and increased access to markets, increasing incomes and building social capital.	Pressure on the woodlands is reduced, deforestation is slowed down, forest cover is retained, globally significant biodiversity is protected and ecosystem services are maintained; Increased income for households, reduced vulnerability to climate change and incentives for sustainable forest resource management and protection.

Cost effectiveness

113. Deforestation and forest degradation are the second largest global source of anthropogenic carbon dioxide emissions. It is widely acknowledged that reducing emissions from these sources is potentially faster and cheaper than reducing emissions from fossil fuel combustion because it does not involve large-scale changes to existing infrastructure. To secure long term conservation of biodiversity and carbon stocks in the miombo woodlands, the communities dependent on them must have incentives to utilize them sustainably to meet current development needs while improving the ecological integrity of the ecosystem; this is the only way to ensure that the ecosystem will continue to provide the goods and services required for economic development and healthy livelihoods to the current and future generations. The cost effectiveness of this project is therefore considered along three critical functions it currently provides: maintaining carbon stocks; maintaining biodiversity and securing livelihoods. Although data on costs of replacing these functions is not readily available, the discussion attempts to compare the value of the woodlands against the costs of setting up protected areas to protect more of the biome, the cost of physical rehabilitation of the degraded woodlands and the potential costs of resettling destitute communities who would have to migrate if the woodlands lost their ability to produce food..
114. **On maintaining carbon stocks:** As reported by Williams et al (2008), the miombo woodlands are unique in that although they are rich in biodiversity, carbon stocks and potential for supporting livelihoods, these properties are very easily lost once the woodlands are cleared. In the analysis undertaken in Nhambita in Mozambique, it was demonstrated that undisturbed woodlands have higher soil carbon content than stem vegetation, registering a median of 57.9 t C ha⁻¹-119.0 (+/- 8) in soils against that of 19.0 (+/- 8) (t C ha⁻¹) for stem wood. The median for both soil and stem wood declined considerably in disturbed (abandoned) agricultural plots with soil median declining by 23%.
115. Bond et al (2010)²⁴ reported that an analysis of the opportunity costs of avoiding deforestation in the eight countries with tropical forests that account for 70 per cent of the global emissions from forests had revealed that it would cost between US\$1 and US\$2/t CO₂ to totally eliminate deforestation. (Kinderman et al., 2008 (quoted by Bond et al – ibid) reported that to halve the emissions from deforestation between 2005 and 2030 would require a payment of between US\$10 and US\$21/t CO₂; which would entail payments of between US\$17 and US\$28 billion per annum from developed to developing countries. This project will lead to direct emissions reductions of at least 1.7 million tons at a Unit Abatement Cost (UAC) of \$0.50/tCO₂e, which is significantly cost effective.
116. **Biodiversity and setting up additional protected areas for the miombo woodlands:** The miombo woodlands already host over 100,000 hectares of protected areas and indeed GEF has financed a large number of fairly successful Protected Areas Projects. Protected areas in the miombo woodlands will however only contain (and protect) a limited sample representation of biodiversity in the biome. Majority of the biodiversity will always be outside the protected areas where the needs of the resident communities cannot be wished away; but where projects can build on the development needs, institutions and traditions of the communities to mainstream conservation friendly processes into the productive sector. Indeed, almost two thirds of Tanzania's 33.5 million hectares of forests and woodlands are on public lands. Several studies have demonstrated that recovery of miombo woodlands biodiversity after clearance for agriculture is very slow and rarely recover the flagship species, even in fields that had been abandoned for over 25 years. This particularly difficult in areas where fire disturbance is frequent, as is often the case in agricultural areas. In such cases, more fire resistant species may dominate instead. In this project, the emphasis is on ensuring conservation by mainstreaming sustainable forest management into the production systems, testing the potential of markets, policies and capacities in ensuring "utilization-based conservation". This will always be needed to complement protected areas and to ensure conservation of the majority of the biodiversity found outside of protected area boundaries, while improving the ecological integrity of ecosystems for the continued supply of goods and services necessary for human survival.
117. **Livelihoods:** Given the inherent infertility of the miombo woodlands the land can only support two or so cycles of crops without addition of organic or inorganic fertilizers. Integrated soil fertility management is critical since

²⁴ Bond, I., Chambwera, M., Jones, B., Chundama, M. and Nhantumbo, I. (2010) *REDD+ in dryland forests: Issues and prospects for pro-poor REDD in the miombo woodlands of southern Africa*, Natural Resource Issues No. 21. IIED, London.

return on investment for inorganic fertilizers is often too low to sustain it's except for cash crops. Mainstreaming SFM (through CBFM/JFM, soil fertility management, improved biomass energy processes and NTFPs) provides a cost effective means of increasing the ability of the woodlands to provide services to both livelihoods and conservation, particularly when compared the cost of physically rehabilitating the very fragile woodlands. When done right, this can accomplish conservation at a fraction of the cost of establishing, maintaining and keeping the communities away from protected areas. Fisher et al calculated the opportunity cost of conserving forests and argued that using the funds available for REDD+ to reward people for conserving forests would be ineffective at reducing emissions, because in many cases forest clearance would simply be displaced elsewhere (leakage). Specifically, in countries with under-developed markets such as Tanzania — where in some areas people cannot buy the food and fuel they need — restricting access to forests would force people to either clear forests in other areas or face increased poverty. Even where there are well-functioning markets, leakage could still occur if crop yields can't be increased quickly enough to meet demand. They therefore concluded that boosting agricultural yields on existing farms is a more socially acceptable way of stemming forest loss than simply restricting agricultural expansion, because, in theory, it allows increased demand for food to be met without displacing forest loss or adding to the poverty of local people.

COORDINATION WITH OTHER RELATED INITIATIVES:

- 118. The project will benefit from UNDP-GEF’s past work in forestry, SLM and biodiversity management in Tanzania, including the Eastern Arc Mountains, Selous-Niassa Game Reserve connectivity, the World Bank Marine and Coastal programme, the new Kilimanjaro SFM project, the recently approved coastal forests project, the new support to Tanzania National Parks, and the UN-REDD programme. Lessons will also be drawn from other forest conservation activities in the area inclosing the WB/DANIDA supported Community Forest Programme and the UNDP-GEF SFM projects world-wide.
- 119. The project is highly complementary with a number of national and regional GEF projects. The Project development was coordinated with the other GEF initiatives in the country to avoid any duplication and overlap between the initiatives, and to optimize synergies (table below). This project will also be closely aligned to the Regional Miombo Network, particularly through the participatory monitoring system. This will allow the project to monitor whether the improved management in western Tanzania transfers the pressure to the Congo rain forests. This information will be shared widely to support adaptive management in the region and its forests.

Table 5: Linkages to other projects

Project Name	Focal Area	IA	Description and Linkages
Marine and Coastal Programme (MACEMP)	Mainland Tanzania and Zanzibar	WB/GEF	Geographical linkages, lessons learned
Tanzania National Parks – Protected Area expansion	Southern Circuit Tanzania	UNDP/GEF proposed	Geographical linkages, lessons learned
Capacity for SLM, Kilimanjaro region	Kilimanjaro region	UNDP/GEF	Thematic – landscape land use planning, markets and livelihoods (lessons learned)
Mainstreaming agro biodiversity into agriculture in Ethiopia	Ethiopia, regional and global markets	UNDP/GEF	Thematic linkages – using markets to encourage mainstreaming good practices (to ensure sustainability while increasing harvesting)
Tanzania Coastal Forests Project	Tanzania	UNDP / GEF	Thematic (forestry) linkages, lessons learned
Eastern Arc Mountains	Tanzania	UNDP GEF	Thematic (forestry) linkages, lessons learned
Selous- Niassa Game Reserve Corridor Project	Tanzania, Mozambique	UNDP GEF	Geographical linkages, lessons learned, thematic linkages

Sustainability

120. Sustainability has been a major consideration throughout the development of this project. There are two key interlinked challenges to assuring sustainability.

121. **Institutional Sustainability:** The project strongly emphasizes building institutional capacities in FBD, DCCFF, District administrations, NGOs, CBOs and community/village level resource management institutions to sustain management of forest resources within the overall management of the landscape beyond the lifetime of the project. The experience of FBD, district authorities and community-based associations working in partnership to establish and maintain CBFM forest reserve sites for the production of mutually agreed benefits will establish a foundation for continuing collaboration in the future. Strengthening capacity of the local institutions to enforce implementation of bye laws, combined with raised awareness on the existence of, and importance of implementing bye laws will go a long way in ensuring sustainability.

122. The project will also invest in developing skills of local community leaders and other key stakeholders to mobilize community members for participatory planning, implementation and monitoring of the project implementation. The communities will be facilitated to form cooperatives which will ease engagement with financial institutions as well as access to inputs. The project will develop a body of knowledge and experience with participatory management practices among local and national government authorities.

123. **Financial Sustainability:** The project recognizes that SFM is unlikely to be sustained in the long-term unless poverty levels are reduced, primarily through increasing financial returns from sustainable use related activities. The project aims to increase the profitability of sustainable use through three strategies:

- Carbon Financing from sustainable charcoal;
- Expanding income generating activities from NTFPs;
- Increasing access to financial institutions.

124. **Carbon Finance:** The project will facilitate provision of financial incentives for the adoption of sustainable charcoal through the sale of carbon credits accrued from emissions reductions from improved charcoaling processes. This is in recognition of the fact that sustainably produced charcoal is unlikely to fetch a premium price as long as other countries (or districts) continue to produce regular charcoal. Carbon finance therefore provides an additional income stream to complement the price of charcoal. This is also a mechanism to counter the potential danger of increasing charcoal production (and deforestation) from increased profitability if the increased income was purely from the direct sale of the charcoal. The project will therefore explore market based incentives and link communities to the voluntary carbon finance market to provide an additional income stream as an incentive to sustainable charcoal and improved woodland management. The prospect of carbon finance in Tanzania is increased by its participation in the UN REDD programme, and the commitments expressed by the Government to the process. This project will form a partner to the REDD program, in response to the recommendation for local level piloting in order to test the concept, the issues of payments, leakage and tenure arrangements.

Replicability

125. The Project is incorporating good SFM practices generated in the region, which is a replication of other initiatives. Replicability of its own initiatives will be ensured through several avenues: policy reform, capacity for landscape planning, knowledge generation for adaptation, and the use of market transformation to encourage trading in sustainably harvested products. All of the lessons will be captured and disseminated through the M&E and communications systems.

Table 6: Replication Action Plan

Outcome	Needs/Opportunities for Replication	Project Strategy for Replication
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<p>Outcome 1: The policy, regulatory and institutional arrangement support sustainable forest management in the miombo woodlands.</p>	<p>Several GEF projects being implemented in the country will support policy harmonization with a view to making the countries policy more biodiversity friendly. The Kilimanjaro SLM project will test the sustainable charcoal and carbon finance policies, as well as landscape planning and strengthening of local level implementation of bye laws. This second testing of the approach, if also successful, can be replicated for other ecoregional scale GEF projects globally.</p> <p>This outcome will also help build the capacity of civil society and the government agencies and hence they will be able to replicate the enhanced capacity themselves.</p>	<p>Lessons from implementing the protected area systems approach in the Coastal Forests will be documented, captured, and disseminated in technical papers and scientific products. The approach will also be promoted at relevant international meetings and technical protected area events. It is expected that the capacity build internally will be used to spread the lessons learned across the work of the FBD Tanzania mainland. The country is in the process of setting up a National Dialogue on SLM/SFM process, facilitated by the GM and the GEF SLM project. It is also in the process of formulating an SLM Investment Framework; relevant lessons from all four outcomes will be integrated into the national dialogue and the financing strategy.</p>
<p>Outcome 2: Strengthening skills and capacities for knowledge based CBFM/JFM, integrated soil fertility management and land use planning</p>	<p>CBFM/JFM is an important management tool for the entire miombo woodlands but the low inherent soil fertility and the nature of the woodlands and its inhabitants has presented a problem to increasing productivity of the land without causing further damage to the ecosystem. Further, soil infertility is not being effectively overcome through the current level of soil fertility management practices. There is no long-term monitoring to support adaptive management. This outcome will provide additional lessons on these critical issues (amongst others), and advance the sphere of knowledge.</p>	<p>As with the above, the approach to replication will be to capture the detailed lessons learned and the results of implementing this outcome and to make these available as broadly as possible.</p> <p>Mainstreaming integrated soil fertility information through the District Development Planning process and the extension services will provide a clear avenue for replication. Material generated for training for both land users and technical officers will be made available to other districts in the region to support replication. Finally, the involvement of the IRA, an institute of the University of Dar es Salaam, will provide an avenue for integrating lessons from the project into higher level learning, which is an effective means of replication. It is expected that the capacity and networks build in and with the private sector, communities, CSO and government departments will be used to spread the lessons learned across the country and the region.</p>
<p>Outcome 3: Adoption of Sustainable charcoal and energy switch reduce pressure on woodlands</p>	<p>Biomass energy will continue to be the main source of energy in Tanzania for the foreseeable future. Charcoal production, use of wood for cooking and curing tobacco is all being done using highly inefficient methods and technologies. This outcome will work with stakeholders to improve charcoaling process and link it to carbon credits; it will also facilitate the switch from wood to methane made from human waste in public institutions and support compliance with the use of improved tobacco curing procedures.</p>	<p>As above; in addition, linking sustainable charcoal to the voluntary carbon markets will provide an additional income stream, which will be an incentive for uptake by communities outside of the pilot wards. This project will also be linked to the REDD initiative, which is dealing with the issue of payment for ecosystem services (sequestration) at the national and regional level. Lessons will be captured and shared with the national initiative, while seeking to incorporate (and locally test) many of the lessons being generated by it.</p>

<p>Outcome 4: Markets support expansion of livelihood options to reduce pressure natural resources & increase income.</p>	<p>This outcome will test the concept of increasing trade in natural resources at the local level without causing further overharvesting. This is necessary because SFM cannot be sustained in the long term unless returns from investments in improved practices (CBFM/JFM, integrated soil fertility management) are complemented by income from non-consumptive sources. This will ensure that the value of standing forests/trees are greater than (or at least perceived to be greater than) the immediate benefits of deforesting.</p>	<p>As in outcome 2</p>
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PART IV: ALIGNMENT OF PROJECT DESIGN WITH THE ORIGINAL PIF:

126. The project is in line with the PIF with minimal adjustments to the outcomes and budgets to accommodate PPG process and findings. This project started off as a joint initiative between the Government of Tanzania, the World Bank and UNDP; with joint IA responsibility foreseen between the two GEF Agencies. The World Bank has since withdrawn from the partnership to reduce transaction costs of implementation. Letters of transfer of this responsibility from the World Bank and the government are attached as annex 2 of this document. The budget for outcome 1 has been reduced from the USD 650,000 estimated at PIF, to USD 200,000 reported in this document. This change was a response to the findings of the PPG that policy related work would cost less, while the facilitation of sustainable charcoal would cost more than was estimated at PPG. It was also to support another finding at PPG – that sustainable charcoal and adoption of biogas should be a stand-alone component in the project, contrary to the PIF stage, where it was an output within another outcome. This was necessitated by the findings that the charcoal production is a significant threat to the miombo woodlands; and, that substantial global benefits can be delivered from improving the charcoaling business. However, the barriers to adopting sustainable charcoal were quite significant; hence the promotion to an outcome. These changes have significantly improved the design of the project. The streamlined implementation partnership will increase efficiency and improve implementation, and impacts.

127. There were however several changes in the sources, type and amounts of co-finance as explained in the table below.

Co-finance at PIF	Co-finance at CEO	Explanation for the change
World Bank – 3mill in kind	0	<p>The World Bank dropped the climate change component (and out of the project partnership) because the project no longer coincided with its programming cycle in Tanzania. This was due to the fact that the original project was submitted for the work program of November 2007 expected to draw from the SFM/LD and CCM focal areas. In the September 2007 review sheet, the CEO advised that the SFM component would have to be financed from the country’s BD allocation since the LD allocation had already been exhausted. Both UNDP and the Bank were advised to work with the GEF OFP in the country to secure allocation from BD. The process of renegotiating allocation from the BD focal area took such a long time that the Bank program which had been expected to provide co-finance to the project was concluded. At the same time the Bank changed staff in their Tanzania Office and the interest and institutional history for the project wavered; consequently the Bank requested UNDP to execute the PPG with its participation and eventually withdrew from the project. The letters explaining the Bank withdrawal and transferring all responsibilities to UNDP are annexed to the CEO request.</p> <p>The co-finance shortfall has been bridged through increasing contribution from other sources, primarily the Bilateral (NORAD through the IRA) and the government.</p>

UNDP – 0.9 million in kind	UNDP – 0.8 million in cash	UNDP has increased its investment in the environment sector in Tanzania and in the last few years and it therefore had the flexibility to provide cash co-finance, albeit 0.1 million less than the parallel co-finance pledged at PIF. We consider that the 0.8 million cash co-finance will advance the project objectives further than the parallel co-finance that had been pledged at PIF.
Bilateral - \$2.0M cash	Bilateral - 0	The Bilateral referred to in the PIF was NORAD which had agreed to provide cash co-finance. However, given the delay explained above, it became impossible to delay disbursement of its fund to Tanzania. NORAD still contributes to the project, but through the REDD funds channeled through the Institute of Resource Assessment (IRA) - see the following two boxes below).
NGO 0.5M in kind, 0.1 cash	0	The NGO referred to in the PIF is the Institute of Resource Assessment (IRA) – for explanation see box below.
IRA - 0	IRA – 3.5 million cash	The IRA is one of the recipients of NORAD’s funding to Tanzania under the REDD program. This is the same funding that NORAD had pledged as cash co-finance at PIF stage. The funds have now been provided through the IRA, which was the PPG executor for this project, and which will provide technical expertise to the Rukwa and Tabora Regional governments in the execution of the project. This is explained in the project summary in the UNDP prodoc. The sum was increased to 3.5 million.
Private sector – 1 M cash	Private sector 3.66 M parallel	As explained in the letter of co-finance from the ATTT (Tobacco company), the tobacco industry invests upwards of 0.7 million USD annually on extension services to the tobacco growers in Tanzania. This amounts to about 3.66 million USD for the duration of the project. The investment is in the form of tree seedlings, loans for fertilizer for tobacco and for construction of improved barns. It will continue to do so particularly under the project where the government will provide stronger enforcement so that tobacco farmers can comply better with the environmental regulations.
Government – 0.5M in cash; 1.0M in kind.	Government – 4.4 in cash; 1.5 in kind.	The government expenditure on development in the Rukwa and Tabora regions is quite significant. This includes support to salaries of technical staff and direct support to development projects. The PPG was used to assess this investment more accurately, leading to the recognition of the higher amounts that the government will be investing in SFM as co-funding

PART V: AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies and procedures and meets the GEF criteria for CEO Endorsement.					
UNDP-GEF Coordinator	Signature	Date	Project Contact Person	Telephone	Email Address
Yannick Glemarec, UNDP/GEF Executive Coordinator		October 7, 2011	Veronica Muthui, RTA EBD	+27 12 354 8124	veronica.muthui@undp.org

Annex A SECTION II: STRATEGIC RESULTS FRAMEWORK (SRF) AND GEF INCREMENT

Project strategy	Objectively Verifiable Indicators				
	Indicator	Baseline	Target	Verification	Risks/assumptions
Goal	Sustainable Forest Management secures ecosystem and biodiversity values while providing a buffer to the Congolian Rain forest, ensuring food security and sustainable livelihoods.				
Objective: To provide land users and managers with the enabling environment (policy, financial, institutional, capacity) for climate resilient SFM adoption in the miombo woodlands	Extent of land mainstreaming SFM principles in land use	Currently there is limited mainstreaming of SFM principles into land use in the 133,000 ha of pilot wards; the same applies for the rest of the districts and the region.	By the end of the project, management of 133,000 ha (pilot wards) mainstreaming SFM principles and another 150,000 ha benefiting indirectly from upscaling of lessons through the districts and regional planning and extension structures as well as the SLM project facilitated National Dialogue on SLM/SFM (and the soon to be formulated SLM Investment Framework)	CBFM/JFM reports, Project M&E reports, observations, Extension agents	Short term gains from deforestation can be overcome through increasing benefits from more sustainable management, combined with stronger implementation of bye laws
	Extent of woodland under active JFM/CBFM in the project area and extent benefiting from upscaling	Although currently there is about 500 ha of woodlands under CBFM/JFM, none of it is being managed in accordance with the principles of CBFM due to low levels of compliance; so effective baseline is less than a 100ha.	Over 500 ha managed under active CBFM/JFM principles (project pilot area) and another 500 ha impacted by up-scaling during the project's 5 yrs; the additional 500 will benefit through upscaling (using channels explained above)	Project M&E reports, observations, Extension agents reports	
	Reduction in the rates of deforestation	Currently estimated to be over 10% per annum ²⁵ ; there are several seriously degraded patches of woodlands, particularly the abandoned tobacco fields	At least 25% recovery in highly degraded patches and woodlands around the villages as measured by regeneration (recruitment) and improvements in species index and population structure for forests/woodlands	Department of forests reports; project monitoring reports	
	Improvement in household welfare for a minimum of 40% of the 12,000 households in pilot wards, as measured by 30% increase in household income; And 40% reduction in number of food insecure days;	More than 90% of households are below the UN poverty line; however, specific baseline household incomes and number of food secure days will be established during the inception period.	5% increase in household income for 40% of households by year 3, and 30% increase by end of the project; 20% reduction in food insecure days for 40% of households by year 3 and 40% increase by end of the project	Reports from the participatory M&E system;	

1. ²⁵ this figure needs to be confirmed

	Emissions Reductions from adoption of improved tobacco curing barns, sustainable charcoal and methane cookers	Currently tobacco curing uses 45m ³ per hectare of tobacco instead of 14m ³ that can be achieved through improved barns. This is leading to total emissions of about 185,649tons of carbon per year in the 8 pilot villages alone (producing about 8,000 hectares of tobacco. Unsustainably produced charcoal releases a minimum of 9 tons of Carbon; the 10,000 tons of charcoal produced in the wards releases about 90,000 tons of carbon per year.	At least 70% reduction in wood used in tobacco curing for at least 40% of the tobacco cured (on average) leading to direct ERs of 170,368 per year (for ten yrs totaling to 1,703,680tCO ₂ e); further ERs are expected from sustainable charcoal and methane adoption. This will be calculated during the inception period and reported at MTE	Reports of the participatory monitoring system; Reports from the Tobacco company; Reports of the carbon project, particularly related to sales of carbon credits	Adoption of improved tobacco curing barns requires stronger enforcement of environmental regulations by the local government; there is a risk that this does not happen because local leaders are unwilling to risk becoming unpopular or that politicians interfere with the enforcement because it might have ramifications for their political carriers. Selling carbon credits (co-finance) will serve as an incentive for adoption of sustainable charcoal (in addition to the enforcement of local environment regulations). The project will target the voluntary market. There is a risk therefore that although voluntary markets are recovering after the financial crisis of 2008, the demand for carbon credits will decline if the Kyoto protocol is not renewed or is not replaced by another binding mechanism
Outcome 1: Policy and institutional support	Number of policies mainstreaming SFM	All policy statements mention importance of SFM but don't have details of how SFM will be ensured	At least 3 policies revised to mainstream SFM principles and so provide a better policy environment for SFM;	Policy discussion papers and briefs; project monitoring reports	Policy processes tend to be slow in developing countries. Speeding up the process, especially of formulating legislative frameworks will be necessary for achievement of this indicator
	Number of bye - laws reflecting national policies being effectively implemented at the local level	Policy implementation very weak due to weak judiciary and inadequate understanding of, and buy-in for the policies by local communities	Legislation and institutional arrangement guiding policy implementation for at least 3 key policies are influenced by project results and overtly recognize SFM principles; Local level governance of SFM improved by incorporation of traditional regulations into bye laws with clear implementation mechanisms At least a 100% increase in number of people reporting to be aware of the NRM/ SFM/ CBFM polices and bye laws; At least a 100% increase in number of people actively abiding by the NRM/ SFM/ CBFM polices and bye laws;	Policy discussion papers and briefs; project monitoring reports	Decentralisation has gone a long way in creating a stronger policy implementation environment. However, local level compliance is sometimes discouraged by rent seeking. The returns on compliance have to match the suffering for non-compliance for this to be effective.

Outcome 2: Strengthening skills and capacities for knowledge based CBFM/JFM, integrated soil fertility management and land use planning	Woodlands being managed under effective CBFM/JFM	Although currently there is about 500 hectares of land declared to be under CBFM/JFM, none of it being managed in accordance to the principles of CBFM in practice; thus the effective baseline is less than 100	By the end of the project, at least 500 ha of woodlands being managed under functional ²⁶ CBFM/JFM	Community based M&E reports; extension work plans and reports; Project monitoring reports	Short term gains from deforestation can be overcome through increasing benefits from more sustainable management, combined with stronger implementation of bye laws
	Percentage of staff and land users with updated skills for climate resilient SFM	The two regions (Tabora, Rukwa) have line ministry technical staff with training in forestry, agriculture, energy and trade. However, few staff members have integrated the technical skills to adequately support SFM by land users. A very small percentage of the land users have received training from the baseline projects described in the GEF incremental section; exact baselines will be established during the training needs assessment (at inception)	By year 2, at least 50% of the technical officers and land users requiring capacity improvement have received skills (training and materials) to enhance their capacity for integrated soil fertility management, CBFM/JFM and adaptation to climate change	Training reports; extension work plans and reports; Project monitoring reports	Regional and local government retains adequate staffing numbers
	Increase in tree density on farms, degraded areas under rehabilitation and woodlands under CBFM/JFM	This baseline will be established through the participatory M&E system to be formulated under outcome 2.5 and reported in the PIRs	At least 25% increase over the baseline (by the end of the project)	Stratified random sampling techniques and findings reported in the project M&E reports	
	Percentage of community engaging in SFM practices	Currently less than 10%	At least 50% increase in number of farmers consistently applying 3-5 integrated soil fertility management practices	Extension services work plans and reports, participatory M&E reports, project monitoring reports	
	Change in crop yields	Maize yields currently at less than a third of potential (5tons/ha versus 15tons/ha). Baseline yields for other indicator crops will be established as soon as these are selected per village (at inception)	At least 25% increase in agricultural produce for key crops as a result of improved integrated soil fertility management and other agricultural practices (which increase soil fertility and soil-water use by crops)	Extension work plans and reports; participatory M&E reports; project monitoring reports	That project interests micro finance institutions and farmers uptake of improved practices; The increased crop yields and incomes from the income generating activity provide adequate incentives to overcome reticence and short term decision making tendencies.
	Quantity of carbon mitigated	Currently 95% of tobacco grown by small scale farmers	At least 40% adoption of improved tobacco barns in pilot	Extension work plans and reports;	The tobacco company and the local government cooperates in the

²⁶The participatory M&E system to be defined under outcome 2 will refine this indicator and test practical ways to monitor it.

		using inefficient traditional kilns that consume 45m3 of wood per ton of tobacco instead of the 14 m3/tons for improved barns;	villages and an additional 30% in neighbouring villages leading direct ERs of 1.7 million tCO2e (see calculations in the GEB section)	participatory M&E reports; project monitoring reports	enforcement of CBFM, SFM and other environmental management bye-laws
	Percentage of population using weather information in decision making	Currently less than 10% due to mistrust of the weather information and inadequate dissemination of same	At least 25% increase in number of farmers using weather information for decision making (co-fin);	Participatory M&E reports	Co-finance program of work on improving weather prediction and information dissemination comes through; land users can overcome mistrust of weather information
Outcome 3: Adoption of Sustainable charcoal and energy switch reduce pressure on woodlands	Number of operational charcoal associations engaging in sustainable charcoal	Currently none	At least 10 charcoal associations are active and facilitating their members to adopt and comply with sustainable charcoal principles by the end of the project (half that by year 3).	Project monitoring reports, charcoal association reports.	
	Quantity of carbon mitigated from adoption of sustainable charcoal	Pilot villages producing an average of 10,000 tons of charcoal per year using largely traditional and inefficient methods	By the end of the project, more than 40% of charcoal being produced via sustainable means, saving upto to 20% of wood needed to make the wood (the ERs to be derived from this savings will be reported at MTE.)	Project monitoring reports, charcoal association reports.	Voluntary carbon credit markets can be identified and linked to the charcoal makers to provide the additional incentive for sustainable charcoal (in addition to stronger enforcement of local NRM bye-laws
	Institutional coordination of charcoal processes	Currently no specific institution to coordinate charcoal processes, responsibilities spread across a number of ministries with no specific coordination	By year 3, an institution to support regional level charcoal coordination in place and functioning; discussions for national replication started by the end of the project	Project monitoring reports, charcoal association reports.	National REDD program is successful; Government collaborate with local environment management committees to enforce compliance with environmental bye-laws;
	Energy switch from wood to methane in public institutions	Many public institutions use electricity, LPG or wood. The specific baseline for those using methane gas from human waste will be established during the inception, but it is likely to be less than 4	At least 4 public institutions adopt methane generated from human waste for cooking;	Project monitoring reports	
Markets and technology support expansion of livelihood options in miombo	Number of new viable business as an avenue for energizing local economic development	Limited opportunities for markets due to very few agro processing businesses, hence agricultural produce difficult to market	At least 2 agri-processing business established and making contribution to local economic development and SFM	District Trade records and project monitoring reports	Private sector buys into the project and engages in the micro-finance provision.
	Volume of trade in	There is currently some	By the end of the project, volume of	District Trade	As above

woodlands to reduce pressure on agriculture and natural resources and increase income	SFM/BD friendly income generating products	trading in NTFPs but the volumes vary from village to village. Exact baselines on volumes of trade will be established during the inception, but it is expected to be quite low.	trade in SFM/BD friendly income generating products increased by at least 50% from the currently low baseline.	records and project monitoring reports	
	Access to micro-finance and credits	Tobacco farmers currently accessing credit but only for the cash crop (tobacco). Generally less than 25% of farmers have access to micro-finance and credits outside of the tobacco context	At least 35% increase in number of farmers accessing micro-finance and credits for food crops by the end of the project;	Project monitoring records	As above
	Number of producer cooperatives actively facilitating access to inputs and markets	Currently the only cooperatives relate to tobacco farming and marketing	At least 3 non-tobacco cooperatives established and facilitating operations for production of other crops (depending on needs identified during project inception)	Project monitoring records	That individual farmers will overcome individualism and see the benefits of the cooperatives

SECTION III: Total Budget and Work plan

GEF Component/Atlas Activity	Res Party (IA)	SoF	Atlas Budget Account Code	Input/ Descriptions	USD Year 1 (2011)	USD Year 2 (2012)	USD Year 3 (2013)	USD Year 4 (2014)	USD Year 5 (2015)	Total (USD)	Budget Notes
Outcome 1 – policies		GEF	72100	Contractual Services - Companies	50,000	30,000	20,000	10,000	5,000	115,000	1
		GEF	71600	Travel	10,000	5,000	5,000	1,000	1,000	22,000	2
		GEF	74200	Audiovisual and printing production	10,000	1,000	1,000		2,000	14,000	3
		GEF	75700	Training, and conferences	20,000	10,000	7,000	7,000	5,000	49,000	4
Sub-component Total					90,000	46,000	33,000	18,000	13,000	200,000	
Outcome2 Knowledge based		GEF	72100	Contractual Services - Companies	90,000	90,000	80,000	80,000	61,000	401,000	5
		GEF	71200	International consultants	20,000	20,000	10,000	0	0	50,000	6

CBFM/JF M and land use planning		GEF	71300	Local Consultants	20,000	20,000	10,000	10,000	10,000	70,000	7
		GEF	74100	Professional Services -	1,000	2,500	2,500	2,500	2,500	11,000	8
		GEF	71600	Travel	20,000	20,000	20,000	20,000	10,000	90,000	9
		GEF	74200	Audiovisual and printing production	10,000	10,000	10,000	5,000	5,000	40,000	10
		GEF	75700	Training, and conferences	49,000	47,500	47,500	47,500	46,500	238,000	11
Component 2 Subtotal					210,000	210,000	180,000	165,000	135,000	900,000	
Outcome 3 Sustainable charcoal, biogas and improved tobacco kilns		GEF	72100	Contractual Services - Companies	100,000	100,000	80,000	70,000	30,000	380,000	12
		GEF	71300	Local Consultants	0	0	0	0	0	0	
		GEF	71200	International Consultants	20,000	10,000	10,000	10,000	0	50,000	13
		GEF	71600	Travel	10,000	10,000	10,000	5,000	5,000	40,000	14
		GEF	74200	Audiovisual and printing production	10,000	10,000	10,000	5,000	1,000	36,000	15
		GEF	75700	Training, and conferences	30,000	30,000	30,000	30,000	20,000	140,000	16
		GEF	74100	Professional Services	5,000	5,000	4,000	3,500	2,000	19,500	17
		GEF	74500	Miscellaneous Expenses	1,000	1,000	1,000	1,000	1,000	5,000	18
Total Component 3					176,000	166,000	145,000	124,500	59,000	670,500	
Outcome 4: Markets and local economic growth		GEF	72100	Contractual Services - Companies	90,000	90,000	90,000	60,000	60,000	390,000	19
		GEF	71300	Local Consultants	20,000	20,000	15,000	15,000	8,000	78,000	20
		GEF	71200	International Consultants	10,000	10,000	10,000	0	0	30,000	21
		GEF	71600	Travel	15,000	15,000	10,000	10,000	10,000	60,000	22
		GEF	74200	Audiovisual and printing production	10,000	10,000	6,000	5,000	1,000	32,000	23

		GEF	75700	Training workshops, conferences	20,000	20,000	20,000	15,000	10,000	85,000	24
		GEF	72200	Equipment and furniture	7,000	7,000	5,000	5,000	1,000	25,000	25
Component 4 Subtotal					172,000	172,000	156,000	110,000	90,000	700,000	
Project Managem ent											
		GEF	71400	Local Consultants	45,000	45,000	45,000	45,000	45,000	225,000	26
		GEF	71600	Travel	7,000	6,000	6,000	6,000	6,000	31,000	27
		GEF	72800	Equipment	10,000	1,500	5,000	1,000	1000	18,500	28
	Outcome 4 Subtotal					62,000	52,500	56,000	52,000	52,000	274,500
Project Grand Total					710,000	646,500	570,000	469,500	349,000	2,745,000	

Budget notes	
1-4	<p>Outcomes 1: Under this outcome, the project will support current efforts to develop policy and legislative instruments in favor of conservation friendly land uses, including formulation of policy and procedures for the regularization of charcoal and better implementation of current biodiversity friendly policies. The budget will be used to make support stakeholder participation in the policy processes (formulation and implementation) for the improved harmonization of sector policy in support of mainstreaming SFM friendly practices for better environmental management and economic development. Specifically, the budget will be used for the following:</p> <ol style="list-style-type: none"> 1. Budget under note 1- This budget line will be used to contract a local service provider to facilitate the policy review process. The local entity could be a CSO group or an academic institution and will support the focal ministries, private sector, local technical staff, civil society and communities to engage in a comprehensive participatory review of the current policies, especially the legal and institutional implementation mechanisms to identify weaknesses in both policies and implementation mechanisms and recommendations for improvement. The project will then lobby the relevant authorities for the adoption of the recommendations. 2. Budget note 2 - The project will be implemented in four pilot sites that are dispersed throughout the Tabora region; although the government and other co-finance will provide vehicles, cost of transport is high in the country due to the poor state of roads and the public transport system. This budget will support local level travel related to policy work. 3. Budget under note 3 - The training related to policy implementation, testing of charcoal rules, adoption of sustainable charcoal and improving efficiencies along the charcoaling chain will involve a high level of training events, printing and use of audio-visual technology. The budget provided for this (notes 3) will be used to support the production of training materials. 4. The budget provided under budget note 4 will support the delivery of training events and production and dissemination of awareness raising materials related to policy reviews and lobbying for adoption of policy recommendations.
5-11	<p>Budget under notes 5-11 support the implementation of outcome 2. Under this outcome, the project will ensure that knowledge based soil fertility management, CBFM/JFM and land use planning forms the basis for mainstreaming SFM and improving economic development in the miombo woodlands. It will also ensure that a participatory M&E system is designed and implemented to support adaptive management, including linking monitoring systems to forest trends in the region. The project will therefore provide technical support to relevant authorities (municipal, local and central government) to facilitate the improvements. This will be backed up by strengthened capacities for resource monitoring among producer groups, community organizations and local governments. Resource users will be provided with skills to strengthen CBFM/JFM and implement the integrated resource management plans; and, to monitor the impacts as well as in the use of monitoring information for adaptive management. The budgets will be used as follows:</p> <ul style="list-style-type: none"> • Budget note 5 – The tasks under outcome 4 (integrated soil fertility management, training, CBFM/JFM, rehabilitation of degraded abandoned areas) will be conducted by the government technical teams with targeted support from the project management team and international and local consultants as deemed necessary. The budget provided under budget note 5 will be used to complement government co-finance to facilitate the functioning of the government departments responsible for extension, to implement the activities related to the outcome. It will also be used to contract a local organization with expertise on landscape land use planning, CBFM/JFM, ecosystem based adaptation and rehabilitation of degraded lands where necessary. Given the wide variation of technical skills required to implement the outputs and deliver results, it is likely that several organizations will be required ranging from IRA, ICRAF to WWF and CBOs. The details will be provided during the inception period and confirmed in the annual work plans. • Budget under note 6 will be used to hire international consultants to support targeted technical support related to landscape planning, CBFM/JFM, adaptation, participatory M&E, training on SFLM, development of material for improving extension package, rehabilitation of degraded sites, etc. • Budget under note 7 will be used to hire additional local consultants to support the regional government with targeted technical support related to landscape planning, CBFM/JFM, adaptation, participatory M&E, training on SFLM, development of material for improving extension package, rehabilitation of degraded sites, etc. • Budget under note 8 will be used to pay for additional professional services related to the enforcement of local rules and regulations for CBFM/JFM. • Budget under note 9 will be used to support transport for the project implementation, particularly for travel of local and international consultants. This is because the project will be implemented in four pilot sites that are dispersed throughout the Tabora and Rukwa regions; although the government and other co-finance will provide vehicles, cost of transport is high in the country due to the poor state of roads and the public transport system.

	<ul style="list-style-type: none"> • Budget under note 10 will be used to finance the production of training materials; • Budget under note 11 will be used to finance training and awareness raising. Specifically the budget will finance travel by farmers, hiring training venues and other incidentals related to the actual training.
Budget notes 12-18	<p>Budget notes 12-18 will support the adoption of sustainable charcoal and adoption of biogas for cooking in public institutions. The project will therefore organize charcoal producers into charcoal associations, provide them with training and link them to the voluntary carbon markets. It will also provide training and biodigesters and support the adoption of this technique to replace wood. The specific budget will be used as follows:</p> <ul style="list-style-type: none"> • Budget under note 12 will be used to contract a company and/or NGO with experience in payment for ecosystem services, especially on carbon credits related to sustainable charcoal to facilitate the Sustainable charcoal linked to carbon credits. This company will work with the local leadership and communities to establish charcoal associations that lead the production of sustainable charcoal. It will also facilitate the charcoal associations to engage in sustainable charcoal and to improve governance and compliance with the rules and regulations for sustainable charcoal. It will also assist them to establish a system for monitoring compliance as well as receiving and distributing benefits. The company will also work with the public institutions on biogas; • Budget under note 13 will be used to hire international consultants to provide targeted technical assistance to the process, particularly those related to accessing international voluntary carbon credit buyers and establishment of carbon monitoring protocols. • Budget under note 14 will be used to support travel by international consultants and others to support the sustainable charcoal and biogas components. • Budget under note 15 will be used to finance production and dissemination of training material to support sustainable charcoal and biogas adoption; • Budget under note 16 will be used to support formation and capacitation of the charcoal producer associations. This will include training, establishment of bye laws, monitoring of compliance with bye laws etc. • Budget under note 17 is to cater for miscellaneous expenses. This is to cater for the difficulty of accurate budgeting for a project to be implemented in rural Tanzania. • Budget under note 18 will be used to finance local consultants to provide additional targeted support to the public institutions related to the adoption of biogas.
19-25	<p>Budgets provided under notes 19-25 will finance implementation of outcome 4. Under this outcome, the will ensure that the viability of the miombo woodlands production system is increased through diversification and financial incentives for SFM. The project will ensure that markets and technology support expansion of livelihood options to reduce pressure on agriculture and natural resources and increase incomes. It will therefore improve local economic development through identification of viable income generating options such as food processing, niche markets for specialized NTFPs, increasing markets and profit margins of currently traded products, engagement with the carbon finance through improved energy efficiency and energy switch, etc. The budgets will be used as follows:</p> <ul style="list-style-type: none"> • Budget under note 19 will be used to support the regional government to facilitate the implementation of this outcome. The budget will be used to complement government funds in supporting work planning and implementation by the regional government. It will also be used to contract a local or regional organization to mobilize the private sector to identify and implement measures to increase local level income generating activities in a sustainable harvest manner. Given the wide range of NTFPs and potential for increasing harvesting and trading sustainably, it is likely that several organizations will be engaged; for example Phyto Trade, IRA, ICRAF, WWF, department of trade and industry, etc. • Budget under note 20 will be used to contract regional/international consultants to provide targeted technical expertise on incentives for alternative livelihoods (products, production, processing, identifying markets);: • Budget under note 21 will be used to hire local consultants to complement the international consultants and support the government agencies (ministries, district staff) and local CBOs on all activities related to the implementation of this outcome. In particular, they will provide support in improving processing and packaging, identifying and linking communities to improved markets, establishing sustainable harvest levels, training on improved business process, etc. . • Budget under note 22 will be used to support local transport costs for consultants and others under this outcome. The project will be implemented in four pilot sites that are dispersed throughout the Tabora and part of Rukwa regions; although the government and other co-finance will provide vehicles, cost of transport is high in the country due to the poor state of roads and the public transport system. • Budget under note 23 will be used to finance the production and dissemination of audio-visual materials supporting the implementation of outcome 4. • Budget under note 24 will be used actual training of the resource harvesting groups interested in or with

	<p>potential for engaging in trade. The budget will cover cost of local travel, hiring of venues and other localized costs related to facilitating private sector engagement with SFM.</p> <ul style="list-style-type: none"> • Budget under note 24 will support the purchase of equipment related to the production and dissemination of training and communications materials.
26-28	<p>Budgets under notes 26-28 will be used to ensure that the project is managed effectively and delivers all outputs, outcomes and impacts within time and budget. The budget will be used as follows:</p> <ul style="list-style-type: none"> • Budget under note 26 will be used to hire the some staff members of the Project coordination unit (project administrative assistant and a driver) and support the implementation of the M&E plan outlined in table 2 including audits and project evaluations; • Budget under note 27 will be used to finance travel related to project administration and M&E. • Budget under note 28 will be used to provide operating costs and limited number of equipment such as laptop computers, telephone and stationery;

ANNEX B: RESPONSES TO GEFSEC AND COUNCIL REVIEWS

There was only one issue to be clarified during the project formulation. The table below outlines the specific measures taken to address the issue.

<p>03-24-09</p> <p>During project preparation, please provide additional information on the following issues: a) the actual areas (ha.) of each of the forest blocks to be used in this project in the 4 regions; b) the activities that may provide a financial incentive for local people to manage woodlands. Please clarify if the opportunity cost of management woodlands may be too high for forest management, knowing that there is mounting pressure from within- (industry and local people) and outside- the Miombo (immigrants), c) if the tobacco industry is putting pressure on the Miombo, would they be interested in contributing to this project by obtaining firewood from only well managed Miombo woodlands? How were the results of related initiatives used in the development of this project?</p>	<ol style="list-style-type: none"> 1) The actual combined area of the four pilot sites is 133,400 hectares. The specific areas are 35,000 ha in Imalamakoye, 37,250 ha in Usinge, 39,620 ha in Mbola and 21,530 ha in Inyonga. A detailed map of the pilot sites is provided as an annex in the UNDP project document, annex 2 of the UNDP prodoc also provides the detailed distribution of villages and household sizes. 2) The activities that will provide financial incentives for local communities to manage forest resources better are described in outcomes 3 and 4 in this document (paras 81-92). These are related to sustainable charcoal and improved markets for NTFPs. They include capacity and institutional set up for sustainable charcoal; sustainable charcoal producers linked to carbon finance; high value non-timber forest products (NTFP) and agribusiness identified and developed (including markets): Support to sustainable harvesting and marketing of NTFPs; facilitate private sector to start agri-processing businesses in the local markets (to add value); support to sustainable harvesting for handicrafts; Provide market information by establishing linkages between identified markets and specialized producers (and others) to disseminate market information; conduct training needs assessment and deliver training and other support to improve local capabilities to engage in business; facilitate formation and operationalization of producer cooperative societies to act as channels for marketing of agricultural products and purchasing of farm inputs in bulk (thus reducing transport costs); and, support compliance with the certification requirements for honey production, processing and sale:. 3) As explained in the barrier section, the opportunity cost of foregone short term benefits is still very high for the resource poor farmers. There is an absolute need to increase the benefits from better management from ecosystem services being provided by the forests, in particular carbon sequestration, biodiversity, watershed management and aesthetics (tourism), at higher levels than is currently happening. The key barrier to this is lack of ready markets for the ecosystem services. It is beyond the budget and timeframe of this project to solve this eventual problem. The project will however put in place preparatory measures, institutions and pilots (such as the sustainable charcoal carbon credits). The project will also link with other PES initiatives including the REDD program to expand the payment for ecosystem services and seek to increase returns from CBFM. The option of “doing nothing until there is a definite solution” is not viable. 4) Lessons learnt have been explained and adopted throughout the analysis, barrier and results sections. They include the following: <ol style="list-style-type: none"> a) Farmers will not adopt sustainable practices in the absence of stronger enforcement of bye laws: The Tobacco companies have been providing farmers with tree seedlings for fast growing exotic tree species for tobacco curing but the survival rates for the seedling is very low and some farmers harvest wood from the woodlands even when they have exotic trees growing on their plots. The tobacco companies also provide loans for building improved tobacco curing barns but some farmers use the loans to meet other household needs while some use the improved burns as dwelling places. It was also learnt that many farmers fail to comply with the rules and regulations of CBFM/JFM. The poor adoption of improved practices has been fueled by the absence of penalties for non-compliance due to the absence and weak enforcement of environmental bye laws. The project has incorporated this lesson in the design by including an output on formulation of local environmental byelaws and strengthening enforcement of the existing ones. b) Although the markets are not ready to pay a premium price for sustainably produced charcoal, sustainable charcoal can have an additional income stream from sale of carbon credits in the voluntary markets, making it more profitable than regular charcoal. PPG studies found that it would be difficult to get sustainable charcoal certified and that many consumers would be reluctant to pay a premium price for it given the availability of non-sustainable charcoal in the market and the cash constraints of the majority of the people who use it. A related lesson is that although the CDM has an approved methodology for calculating emissions reduction from sustainable charcoal, it is still too complicated, and it would be difficult for the charcoal producers
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	<p>to comply with the strict conditions of the CDM. The project incorporates these lessons by advising that charcoal producers adopt the CDM approved method, but sell the carbon credits in the voluntary markets for now, until the national policy on charcoal is approved and enforced. Returns on sustainable charcoal are also calculated on the basis of an additional income stream (sale of carbon credits) rather than try certify the charcoal; it also suggests that an institution for coordinating charcoal producers be set up at the regional level, with a view to replicating it at the national level. This institution will have the responsibility of ensuring sustainability of the initiative as well as lobbying for national level policy enabling environment for creating the conditions under which charcoal can be certified.</p> <p>c) Ngitiri traditional systems promote compliance with the CBFM/JFM requirements: PPG studies found that the Ngitiri traditional system strengthens compliance with CBFM/JFM requirements, even within an environment of weakly enforced regulations. The project will support Ngitiris as part of CBFM/JFM, in order to incorporate this lesson in the design.</p>
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STAP Comments	Response
<p>Attention is drawn to the risks that may apply at regional level. Miombo may be acting as a buffer, but if one believes that such buffering is a local effect (i.e., its effects are strongest nearby), one could test for them through careful design of where, for example, property rights are clarified and strengthened in the initial stages of the project (the current buffering effect could actually be a result of the open-access nature of the forest; once you close the commons, you'll just displace pressure to the central African forests).</p>	<p>It is noted that all the miombo woodlands in Tanzania fall under of 3 types of ownership and management regimes: state owned, local authority and community: it is however also acknowledged that failure to enforce laws, rules and bye laws has led to the open access nature, and therefore the encroachment by migrants from the rest of central Africa (primarily from Rwanda and Congo). The real issue here is however lack of planning for sustainability; the in-migrations had been unplanned and new immigrants did not have to comply with environmental best practices as there was no incentive or punishment. The project tackles this problem through three interrelated strategies: strengthening capacity for planning, strengthening capacity for enforcement of environmental regulations, and strengthening CBFM/JFM. It is noted that conflicts in Rwanda and the Congo have reduced considerably, leading to a reduction in unplanned migration into the miombo woodlands of western Tanzania, although the impacts of the previous migrations still need to be addressed. The impacts this project is likely to have at the regional patterns of resource use will be monitored through the Regional Miombo Woodlands Network, with which the project will collaborate – this is reported in paragraphs 78 and .</p>
<p>STAP notes the take-up of local knowledge (ngitri) mixed with community-based initiatives and standard land-use planning - an interesting initiative that has been tried before in Tanzania. Thus, it would be good to know what innovations are being proposed, and how local knowledge systems will be captured and incorporated into sustainable forest management.</p>	<p>The innovations proposed in this project are described in section 2: Project Rationale and conformity, from para 62 onwards. They include support to CBFM/JFM, soil fertility management and adoption of sustainable charcoal as an incentive for better uptake of SFM. The lesson learnt during PPG was that Ngitiri traditional system strengthens compliance with CBFM/JFM requirements. The support to CBFM/JFM will therefore incorporate Ngitiri systems.</p>
<p>On risks, these seem to be substantial, given the political situation, refugees, and general instability in the region. STAP would like to see the risks further specified</p>	<p>Risks are outlined in the risk table and include the risk that better management in the miombos will transfer the pressure to the Congo Rain forests. As reported under outcome 2 and the risk table, the project will link its monitoring system to the Regional Network of Miombo woodlands.</p>

<p>STAP also suggests specifying the baseline measures, how progress will be tracked, and the impact in terms of the global environment benefits. Carbon tracking may be the obvious measure in order to pick-up cross cutting issues of biodiversity, sustainable land management, and climate change.</p>	<p>Baselines have been established for key indicators such as hectares of woodlands under CBF/JFM, current levels of unsustainable charcoal production; current levels of seedlings survival for planted fast growing trees, and, current rates of deforestation. The baselines are reported in the Results Framework in section II. Additional baselines on levels of poverty, volume of trade from NTFPs, forest structure and rates of regeneration will be established during the inception phase.</p> <p>The Results Framework outlines how the indicators will be tracked (to show results). This will be complimented by the design and implementation of a participatory M&E system described in output 2.5. Carbon mitigation will be tracked through measuring the quantity of charcoal produced sustainably. However, the M&E system under output 2.5 may identify other means of tracking carbon mitigated, but that is not foreseen at this stage.</p>
<p>Comment from German Council</p>	<p>Addressed at PIF approval and during PPG</p>

ANNEX C: CONSULTANTS TO BE HIRED BY THE PROJECT USING GEF RESOURCES

Position titles	\$/person week	Estimated person weeks	Tasks to be performed
Local consultants			
For project Management (all local, no international consultants under project management)			
Project Administrator	755.38	260	The Project Manager will be responsible for the day-to-day management and decision-making to ensure successful implementation in the field. This will include preparing and revising work-plans; planning and organizing project review meetings; providing technical feedback to the Project Steering Committee; ensuring that project activities are carried out within the financial limitations of the budget; supervising the technical and administrative support personnel and coordinating project activities with stakeholders as needed. S/he will also liaise with the Project Board and UNDP to assure the overall direction and implementation of the project; identify and obtain any support and advice required for the management, planning and control of the project; be responsible for project administration; and, liaise with any suppliers. Given that the project pilot wards are spread across two regions (Tabora and Rukwa, the project Manager will undertake some travel within the country, which has been budgeted for under outcome 5 (see project notes under outcome 5).
Project Administration and Finance Officer	110	260	The Project Administration and Finance Officer will be responsible for ensuring compliance of project partners with the fiduciary requirements for a UNDP-GEF project being implemented under the National Government institutions. S/he will be a full time employee of the project and will familiarize themselves with the financial rules and regulations, and on line financial management systems of UNDP, the government and the GEF. S/he will then work with the project manager and the Steering Committee to design a financial disbursement and management system for the project. S/he will then take the lead in financial management, making plans to avail funds to support the timely implementation of project activities.
Technical consultants to be hired with GEF Funds			
Local consultants			
CBFM/JFM technical expert	740	95	The consultant will work with the international consultant (see the CBFM international consultant). Working under the international consultant, the consultant will assist the project to review regional and international experience on CBFM and JFM, identify best practices and discuss these with the local teams to identify what can work under the project circumstances. The consultant will then facilitate a review of the local conditions required to improve implementation of CBFM and JFM (together with the local consultant) and make recommendations. S/he will then support the establishment of the conditions as identified and participate in monitoring the compliance with the conditions, and therefore the effectiveness of the CBFM/JFM. The consultant will therefore participate in the design of the participatory M&E system to support the refinement of indicators for monitoring CBFM/JFM and establishment of practical monitoring requirements (such as information to be collected on the indicators, recommended frequency and timing of data collection, data analysis and use for adaptive management). In particular, the consultant will assist to link the project M&E system with the Regional Network on Miombo woodlands to track the effect of strengthened management on the Rain Forests of Congo. Due to the nature of the tasks, the consultant's input will be spread throughout the first two years of project implementation. This will necessitate travel, which is budgeted for separately (see budget notes on outcome 2).

Expert on Income Generating Activities and local economic growth	740	105	This consultancy will assist the project partners to identify economically and financially feasible alternative income generating activities that will increase household incomes while improving the integrity of the miombo woodlands. S/he will therefore facilitate an assessment of local, national, regional and international experiences with income generating activities and draw lessons. S/he will then facilitate an assessment of local conditions needed to support effective uptake of income generating activities and make recommendations. S/he will then support the project partners to adopt the recommendations including organization into cooperative groups, linkages to micro-finance institutions, identification of opportunities for agro-processing, etc. The consultants will also participate in the formulation of training materials, and refining of the M&E system. S/he will therefore ensure that appropriate indicators are identified and incorporated into the participatory M&E, including data needed, frequency and timing of collection, data analysis, storage and use.
International consultant			
CBFM/JFM technical expert	1,300	20	This consultancy will assist the Regional government to strengthen the effectiveness of CBFM and JFM. The consultant will therefore assist the project to review regional and international experience on CBFM and JFM, identify best practices and discuss these with the local teams to identify what can work under the project circumstances. The consultant will then facilitate a review of the local conditions required to improve implementation of CBFM and JFM (together with the local consultant) and make recommendations. S/he will then support the establishment of the conditions as identified and participate in monitoring the compliance with the conditions, and therefore the effectiveness of the CBFM/JFM. The consultant will therefore participate in the design of the participatory M&E system to support the refinement of indicators for monitoring CBFM/JFM and establishment of practical monitoring requirements (such as information to be collected on the indicators, recommended frequency and timing of data collection, data analysis and use for adaptive management). In particular, the consultant will assist to link the project M&E system with the Regional Network on Miombo woodlands to track the effect of strengthened management on the Rain Forests of Congo. Due to the nature of the tasks, the consultant's input will be spread throughout the first two years of project implementation. This will necessitate travel, which is budgeted for separately (see budget notes on outcome 2).
Expert on ecosystems based adaptation	1,300	20	This consultancy will assist the partners to "climate proof" all the project initiatives. The consultant hired under this item will therefore conduct training on climate change and adaptation to the project partners; s/he will then facilitate the project partners to analyze all the proposed initiatives and activities from a climate change perspective and identify additional ways to climate proof them. The consultant will then assess the suggested climate proofing actions proposed and assess the conditions needed to support successful implementation of such actions. S/he will then facilitate the partners to mainstream the proposed actions into the project and District plans; S/he will also assist with fundraising where needed (in cases where implementation of the actions would cost more than the project budget provides). This consultant will be engaged during the project inception and will continue to support the process throughout the first two years of implementation.

Expert on rehabilitation of degraded lands	1,300	10	A consultant will be hired to work with a local consultant to facilitate the inventory, survey and mapping of degraded woodland patches that would not recover without manipulation. They will then facilitate assessment of site potential and selection of pilot sites for rehabilitation, identifying suitable species and techniques for the rehabilitation of the selected pilot sites; they will then quantify the contribution of indigenous and fast growing Agroforestry species, in recognition of the fact that the land is also being used to meet socio-economic needs, which must be balanced with conservation needs. The consultant will then facilitate the implementation of a program for rehabilitating the woodland patches, demonstrating cost effectiveness. The consultant will then participate in the refinement of the M&E system, ensuring that appropriate indicators are identified to monitor recovery of the rehabilitated sites – including identifying data to be collected, frequency and timing, data analysis and storage. This will include data on regeneration, densities, species index, etc. S/he will also contribute experiences from regional and international levels to the training program, and facilitate publication of the Tanzania experiences on rehabilitation.
Sustainable charcoal and carbon markets expert	1,300	50	This consultancy will support the engagement with sustainable charcoal and linking the initiative to voluntary carbon markets. The consultant hired under this item will therefore assist the project partners to assess regional and international experiences on sustainable charcoal and voluntary carbon markets, and identify good practices. S/he will then facilitate an assessment of the conditions needed to make sustainable charcoal a success and make recommendations. S/he will then facilitate implementation of these recommendations, including support to the formation of charcoal associations, defining rules and regulations of operations, designing monitoring and verification systems and identifying potential carbon buyers. The consultant will then participate in the refinement of the M&E system, ensuring that appropriate indicators are identified to monitor engagement with and compliance to principles of sustainable charcoal and sale of carbon credits. This will include identification of data to be collected, frequency and timing, data analysis and storage. S/he will also contribute experiences from regional and international levels to the training program on sustainable charcoal, and facilitate publication of the experiences on sustainable charcoal in Tanzania.

ANNEX D: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS

A. EXPLAIN IF THE PPG OBJECTIVE HAS BEEN ACHIEVED THROUGH THE PPG ACTIVITIES UNDERTAKEN.

128. PPG implementation is completed and the objective of project design met satisfactorily.

B. DESCRIBE FINDINGS THAT MIGHT AFFECT THE PROJECT DESIGN OR ANY CONCERNS ON PROJECT IMPLEMENTATION, IF ANY: N/A

C. PROVIDE DETAILED FUNDING AMOUNT OF THE PPG ACTIVITIES AND THEIR IMPLEMENTATION STATUS IN THE TABLE BELOW:

PPG Activities Approved	Implementation Status	GEF Amount (\$)				Co-financing amount
		Amount Approved	Amount Spent To-date	Amount Committed	Uncommitted Amount*	
Local Consultants	Fully implemented. FSP Project submitted for government endorsement	150,000	150,000			100,000
Miscellaneous/ Management						
Travel						
		150,000	150,000			100,000

Annex E: LETTERS OF EXCHANGE BETWEEN THE WORLD BANK, THE GOVERNMENT AND UNDP TRANSFERRING THE PROJECT FROM THE WORLD BANK TO UNDP.

The World Bank

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
INTERNATIONAL DEVELOPMENT ASSOCIATION

Country Office

50 Mirambo Street
P.O. Box 2054
Dar es Salaam, Tanzania

Tel: (255-22) 2163200
Fax: (255-22) 2113039

January 5, 2011

Mrs. Ruth Mollel
Permanent Secretary - Environment
Vice President's Office
Dar es Salaam

Dear Mrs. Mollel,

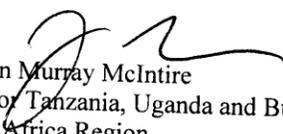
***Request for Transfer of Implementing Agency Responsibility to UNDP for the
Tanzania: Sustainable Woodland Management in the
Miombo Areas of Western Tanzania***

As you know, the Sustainable Miombo Woodland Management Project was conceived as a joint UNDP/World Bank project, with UNDP in the lead in developing the project on behalf of the two institutions.

Following the conclusion of project preparation by the Institute of Resources Assessment of the University of Dar es Salaam, UNDP and the World Bank engaged in discussions on how to (a) reduce transaction costs and (b) increase impacts and sustainability of the expected project outcomes, based on comparative advantages and current work programs of both agencies. Consequently, it is proposed that UNDP should be the sole implementation agency for this project.

With this letter we would like to request your concurrence with this approach and to transfer the project to UNDP.

Sincerely,


John Murray McIntire
Country Director for Tanzania, Uganda and Burundi
Africa Region

RECEIVED JAN 07 2011



Tanzania

JM
AJ
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LM
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AJacob
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Ref: TZA 0003091

6th January 2011

Dear Madame,

"Mainstreaming Sustainable Forest Management in the Miombo Woodlands of Western Tanzania"
UNDP acceptance to receive Implementing Agency Responsibilities from the World Bank

Reference is made to the above subject matter and the World Bank letter dated 5th January 2011 transferring Implementation Agency Responsibilities for the Miombo project to UNDP. As you may recall, this project was indeed conceived as a joint GEF-UNDP/World Bank Project, where UNDP as the lead agency expected to implement the Sustainable Forest Management component under Biodiversity allocation of US\$2.2million and the World Bank was to implement the Climate change component allocated US\$1.0 million.

Following recent discussion among partners, UNDP hereby accepts responsibilities to implement the entire project activities totaling US\$ 3.2 million inclusive of IA fees. Specific activities to be covered are as indicated in the project document now in the final stages for submission to GEF through UNDP Tanzania

In line with UNDP's letter of commitment, I would like to reaffirm our full support to the project proposal which forms part of the UNDAP (2011 – 2015).

We look forward to your continued support and cooperation.

Yours sincerely,

Philippe Poinso
Country Director

The Permanent Secretary,
Vice President's Office
P. O. Box 5380
Dar es Salaam

cc: The Permanent Secretary,
Ministry of Finance
Dar es Salaam – Attn J. Naftal

THE UNITED REPUBLIC OF TANZANIA



Telegramms: "MAKAMU",
Tel 2118416/ 2113983,
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Email: sotchair@africaonline.co.tz

VICE PRESIDENT'S OFFICE,
P. O. Box. 5380,
DAR ES SALAAM.

Ref: BD.78/201/04/7

21st April 2011

Monique Barbut,
The Chief Executive Officer,
Global Environment Facility,
1818 H Street, NW,
Washington, DC 20433.

**Re- Endorsement letter for Project: "Mainstreaming Sustainable
Forest Management in the Miombo Woodlands of
Western Tanzania"**

I write this letter in my capacity as Operational Focal Point for the GEF in Tanzania and also in reference to my earlier endorsement letter ref: BD.78/201/01 of 4th September 2008. We are pleased that the project formulation has been finalized and ready for submission and would like to confirm that the project (a) is in accordance with the Government national priorities and commitment made by Tanzania under the relevant global environment conventions and (b) has been discussed with relevant stakeholders, including the global environment convention focal points, in accordance with GEF's policy on public involvement.

Accordingly, I would like to re-endorse the full size project proposal to access GEF financing of US\$ 2.2 m from RAF Biodiversity and US\$ 1.0 m from RAF climate change. The Entire project will now be implemented by UNDP following consultations done between UNDP and the World Bank and accepted by Government of Tanzania.

By copy of this letter, I would like to request UNDP to finalise the preparation of the Project Document as quickly as possible and look forward to the speedy conclusion of the project development process.

Yours Sincerely,



Dr. Julius Ningu

For: PERMANENT SECRETARY

cc: UNDP Country Director
P. O. Box 9182
Dar es Salaam

Country Director
The World Bank Country Office
50 Mirambo Street
Dar es Salaam



Annex 1: METT for BD SO2 -- Applying the GEF Tracking Tools in GEF-4

Note: Given changes in the GEF's biodiversity strategy in GEF-4, a slightly modified Tracking Tool for this strategic objective has been developed. Please use this tool for all GEF-4 funded projects that fall under this strategic objective.

Objective: To measure progress in achieving the impacts and outcomes established at the portfolio level under the biodiversity focal area. The following targets and indicators are being tracked for all GEF-4 projects submitted under Strategic Objective Two and the associated Strategic Programs

Impact and Outcome Indicators for Strategic Objective Two and Associated Strategic Programs

Strategic Objective	Expected Long-Term Impacts	Indicators
To mainstream biodiversity conservation in production landscapes/seascapes and sectors	Conservation and sustainable use of biodiversity incorporated in the productive landscape and seascape	<ul style="list-style-type: none"> • Number of hectares in production landscapes/seascapes under sustainable management but not yet certified²⁷ • Number of hectares/production systems under certified production practices that meet sustainability and biodiversity standards • Extent (coverage: hectares, payments generated) of payment for environmental service schemes
Strategic Programs for GEF-4 under Strategic Objective Two	Expected Outcomes	Indicators
4. Strengthening the policy and regulatory framework for mainstreaming biodiversity	<ul style="list-style-type: none"> • Policy and regulatory frameworks governing sectors outside the environment sector incorporate measures to conserve and sustainably use biodiversity 	<ul style="list-style-type: none"> • The degree to which polices and regulations governing sectoral activities include measures to conserve and sustainably use biodiversity as measured through the GEF tracking tool

²⁷ This indicator will measure the coverage of management systems in production landscapes and seascapes that are in a transition process to certified production practices.

GEF-4 Tracking Tool for GEF Biodiversity Focal Area Strategic Objective Two:
Mainstreaming Biodiversity Conservation in Production Landscapes/Seascapes and Sectors

Strategic Programs for GEF-4 under Strategic Objective Two	Expected Outcomes	Indicators
5. Fostering markets for biodiversity goods and services	<ul style="list-style-type: none"> • Markets created for environmental services • Global certification systems for goods produced in agriculture, fisheries, forestry, and other sectors include technically rigorous biodiversity standards 	<ul style="list-style-type: none"> • Number and extent (coverage: hectares, payments generated) of new payments for environmental service schemes created • Published certification systems that include technically rigorous biodiversity standards

Rationale: Project data from the GEF-4 project cohort will be aggregated for analysis of directional trends and patterns at a portfolio-wide level to inform the development of future GEF strategies and to report to GEF Council on portfolio-level performance in the biodiversity focal area.

Structure of Tracking Tool: Each tracking tool requests background and coverage information on the project and specific information required to track the indicator sets listed above.

Guidance in Applying the Tracking Tool: The tracking tools are applied three times: at CEO endorsement²⁸, at project mid-term, and at project completion.

In GEF-4, we expect that projects which fall clearly within Strategic Objectives and support specific Strategic Programs under each Strategic Objective hence only one tracking tool will need to be completed.

On *very rare occasions*, projects make substantive contributions to more than one strategic objective. In these instances, the tracking tools for the relevant strategic objectives should be applied. It is important to keep in mind that the objective is to capture the full range of a project’s contributions to delivering on the targets set for each of the strategic priorities. The GEF Implementing Agency/Executing Agency will guide the project teams in the choice of the tracking tools. Please submit all information on a single project as one package (even where more than one tracking tool is applied).

Multi-country projects may face unique circumstances in applying the tracking tools. The GEF requests that multi-country projects complete one tracking tool per country involved in the project, based on the project circumstances and activities in each respective country. The completed forms for each country should then be submitted as one package to the GEF. Global projects which do not have a country focus, but for which the tracking tool is applicable, should complete the tracking tool as comprehensively as possible.

The tracking tool does not substitute or replace project level M&E processes, or GEF Implementing Agencies’/Executing Agencies’ own monitoring processes. Project proponents and managers will likely be the most appropriate individuals to complete the Tracking Tool, in collaboration with the project team, since they would be most knowledgeable about the project. Staff and consultants already working in the field could also provide assistance in filling out the Tracking Tool.

²⁸ For Medium Sized Projects when they are submitted for CEO approval.

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Submission: The finalized tracking tool will be cleared by the GEF Implementing Agencies and Executing Agencies before submission. The tracking tool is to be submitted to the GEF Secretariat at three points:

- 1.) With the project document at CEO endorsement²⁹;
- 2.) Within 3 months of completion of the project's mid-term evaluation or report; and
- 3.) With the project's terminal evaluation or final completion report, and no later than 6 months after project closure.

²⁹ For Medium Sized Projects when they are submitted for CEO approval.

I. Project General Information

1. Project Name: Sustainable Management of the Miombo Woodland Resources of Western Tanzania
2. Project Type (MSP or FSP): FSP
3. Project ID (GEF): 3000
4. Project ID (IA): PIMS 3091
5. Implementing Agency: UNDP
6. Country(ies): Tanzania

Name of reviewers completing tracking tool and completion dates:

	Name	Title	Agency
Work Program Inclusion	Prof Yanda	Director	Institute of Resource Assessment
Project Mid-term			
Final Evaluation/project completion			

7. Project duration: *Planned* years 5 *Actual*

8. Lead Project Executing Agencies: Ministry of Natural Resources and Tourism, Vice President's Office, Institute of Resource assessment (University of Dar es Salaam).

9. GEF Strategic Program:

- ✓ Strengthening the policy and regulatory framework for mainstreaming biodiversity (SP
- ✓ Fostering markets for biodiversity goods and services (SP 5)

10. Production sectors and/or ecosystem services directly targeted by project:

10. a. Please identify the main production sectors involved in the project. Please put "P" for sectors that are primarily and directly targeted by the project, and "S" for those that are secondary or incidentally affected by the project.

Agriculture _____ P _____

Fisheries _____

Forestry _____ P _____

Tourism _____ S _____

Mining _____

Oil _____

Transportation _____

Other (please specify) _____

II. Project Landscape/Seascape Coverage

129. 11. a. What is the extent (in hectares) of the landscape or seascape where the project will directly or indirectly contribute to biodiversity conservation or sustainable use of its components? An example is provided in the table below.

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Targets and Timeframe	Foreseen at project start	Achievement at Mid-term Evaluation of Project	Achievement at Final Evaluation of Project
Project Coverage			
Area <u>directly</u>³⁰ covered by the project (ha)	133,000		
Landscape area <u>indirectly</u>³¹ covered by the project (ha)	500,000		

130.

131. Explanation for indirect coverage numbers:

132. The miombo biome in western Tanzania is quite large; the project is expected to have an indirect influence in the two regions under which the pilot wards are located.

133.

134. 11. b. Are there Protected Areas within the landscape/seascape covered by the project? If so, names these PAs, their IUCN or national PA category, and their extent in hectares. N/A

	Name of Protected Areas	IUCN and/or national category of PA	Extent in hectares of PA
1.			

135.

136.

137. 11. c. Within the landscape/seascape covered by the project, is the project implementing payment for environmental service schemes? If so, please complete the table below. An example is provided.

Targets and Timeframe	Foreseen at Project Start		Achievement at Mid-term Evaluation of Project		Achievement at Final Evaluation of Project	
Coverage	Extent in hectares	Payments generated (US\$)	Extent in hectares	Payments generated (US\$)	Extent in hectares	Payments generated (US\$)
Environmental Service						

³⁰ Direct coverage refers to the area that is targeted by the project's site intervention. For example, a project may be mainstreaming biodiversity into floodplain management in a pilot area of 1,000 hectares that is part of a much larger floodplain of 10,000 hectares.

³¹ Using the example in footnote 5 above, the same project may, for example, "indirectly" cover or influence the remaining 9,000 hectares of the floodplain through promoting learning exchanges and training at the project site as part of an awareness raising and capacity building strategy for the rest of the floodplain. Please explain the basis for extrapolation of indirect coverage when completing this part of the table.

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Carbon sequestration/mitigation	500	13,500 per year				

III. Management Practices Applied

138. Within the scope and objectives of the project, please identify in the table below the management practices employed by project beneficiaries that integrate biodiversity considerations and the area of coverage of these management practices. Please also note if a certification system is being applied and identify the certification system being used. Note: this could range from farmers applying organic agricultural practices, forest management agencies managing forests per Forest Stewardship Council (FSC) guidelines or other forest certification schemes, artisanal fisherfolk practicing sustainable fisheries management, or industries satisfying other similar agreed international standards, etc. An example is provided in the table below.

Specific management practices that integrate BD	Name of certification system being used (insert NA if no certification system is being applied)	Area of coverage foreseen at start of project	Achievement at Mid-term Evaluation of Project	Achievement at Final Evaluation of Project
CBFM/JFM	None	500		
SFM	None	133,000		

IV. Market Transformation

13. *For those projects that have identified market transformation as a project objective, please describe the project's ability to integrate biodiversity considerations into the mainstream economy by measuring the market changes to which the project contributed. The sectors and subsectors and measures of impact in the table below are illustrative examples, only. Please complete per the objectives and specifics of the project.*

Name of the market that the project seeks to affect (sector and sub-sector)	Unit of measure of market impact	Market condition at the start of the project	Market condition at midterm evaluation of project	Market condition at final evaluation of the project
Agricultural markets	Volumes of products traded	<i>tba</i>		
	Percent of household income from trading	<i>Less than 1% for no more than 5% of households</i>		

V. Policy and Regulatory frameworks

For those projects that have identified addressing policy, legislation, regulations, and their implementation as project objectives, please complete the following series of questions: 14a, 14b, 14c.

An example for a project that focused on the agriculture sector is provided in 14 a, b, and c.

14. a. Please complete this table at **CEO endorsement for each sector** that is a primary or a secondary focus of the project. Please answer YES or NO to each statement under the sectors that are a focus of the project.

Sector	Agriculture	Fisheries	Forestry	Tourism	Water	Land
Statement: Please answer YES or NO for each sector that is a focus of the project.						
Biodiversity considerations are mentioned in sector policy	yes	yes	yes	yes	yes	yes
Biodiversity considerations are mentioned in sector policy through specific legislation	yes	yes	yes	yes	yes	yes
Regulations are in place to implement the legislation	yes	yes	yes	yes	yes	yes
The regulations are under implementation	yes	yes	yes	yes	yes	yes
The implementation of regulations is enforced	yes	yes	yes	yes	yes	yes
Enforcement of regulations is monitored	Yes	no	yes	yes	yes	no

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14. b . Please complete this table at **the project mid-term for each sector** that is a primary or a secondary focus of the project. Please answer YES or NO to each statement under the sectors that are a focus of the project.

Sector	Agriculture	Fisheries	Forestry	Tourism	Other (please specify)	Other (please specify)
Statement: Please answer YES or NO for each sector that is a focus of the project.						
Biodiversity considerations are mentioned in sector policy						
Biodiversity considerations are mentioned in sector policy through specific legislation						
Regulations are in place to implement the legislation						
The regulations are under implementation						
The implementation of regulations is enforced						
Enforcement of regulations is monitored						

14. c. Please complete this table at **project closure for each sector** that is a primary or a secondary focus of the project. Please answer YES or NO to each statement under the sectors that are a focus of the project.

Sector	Agriculture	Fisheries	Forestry	Tourism	Other (please specify)	Other (please specify)
Statement: Please answer YES or NO for each sector that is a focus of the project.						
Biodiversity considerations are mentioned in sector policy						
Biodiversity considerations are mentioned in sector policy through specific legislation						
Regulations are in place to implement the legislation						
The regulations are under implementation						
The implementation of regulations is enforced						
Enforcement of regulations is monitored						

All projects please complete this question at the project mid-term evaluation and at the final evaluation, if relevant:

14. d. Within the scope and objectives of the project, has the private sector undertaken voluntary measures to incorporate biodiversity considerations in production? If yes, please provide brief explanation and specifically mention the sectors involved.

An *example* of this could be a mining company minimizing the impacts on biodiversity by using low-impact exploration techniques and by developing plans for restoration of biodiversity after exploration as part of the site management plan.

VI. Other Impacts

16. Please briefly summarize other impacts that the project has had on mainstreaming biodiversity that have not been recorded above.
