IMPLEMENTATION COMPLETION MEMORANDUM (ICM)
Revised Template version 5/18/06

A. BASIC TRUST FUND INFORMATION

TF Name: Sustainable Land Management in the Miombo Woodland Ecosystem
TF Number: 050710
Task Team Leader Name/TF Managing Unit: Alex Mwanakasale
TF Amount (as committed by donors): $747,000
Recipient of TF funds (Bank/Recipient, if Recipient state name of recipient government and implementing agency): Government of the Republic of Zambia
Type of TF(Free-standing/ programmatic/ new TF for an ongoing program): Free-Standing
Single/Multi Donor: Multi-donor
Donor(s) Name(s): GEF
TF Program Source Code: N/A
Purpose of TF (Co-financing/Investment financing/ Debt Service/ Advisory Activities-Bank/Advisory Activities-Recipient, etc): Co-Financing
TF Approval/IBTF Clearance Date: 05/14/2002
TF Activation Date: 05/14/2002
TF Closing Date(s): 05/31/2008
Date of ICM Submission to TFO:

Cost and Financing Table:		
	GEF	747,000
	Co-financing (ASIP)	350,000
	Government	253,000
	TOTAL	1,350,000

B. TRUST FUND DEVELOPMENT OBJECTIVES AND DESIGN

1. Original (and Revised) Trust Fund Development Objectives

The goals of the project were: (i) a reduction of carbon emissions from unsustainable slash-and-burn (chitemene) agricultural practices in the miombo woodlands; (ii) the conservation of globally significant biodiversity; and (iii) improvement of the food security of the local population. In order to achieve these goals, the project was expected to promote a shift in land management from the currently practiced chitemene system (slash and burn) to a sustainable land management system, based upon integrated ecosystem management (IEM) and conservation farming (CF) principles.

The specific objectives of the project were to: (i) identify and assess the applicability of potential IEM and CF techniques; (ii) build local and national capacity in sustainable land management; (iii) facilitate a shift from chitemene to sustainable land management practices in selected pilot areas within the Miombo woodlands; and (iv) extend the experiences gained with sustainable

land management to other areas within a comparable agro-ecological environment, both in Zambia and in neighboring countries.

2. Original (and Revised) Trust Fund Activities/Components

The project had four components: (i) supporting studies; (ii) capacity building; (iii) promotion of sustainable land management in Mkushi and Serenje districts; and (iv) scaling up of sustainable land management approach to other areas in Zambia. The project was managed through a project management unit also responsible for monitoring and evaluation and, information dissemination.

(i) Supporting Studies. This component included two studies and a targeted research program that was expected to increase awareness and understanding of potential contribution of CF and IEM to sustainable land management. The study assessed the suitability of various CF techniques for application in the Miombo woodland area. Potential techniques included zero tillage, crop rotation, and spot application of lime and fertilizers. The second study identified potentially feasible community-based IEM techniques and provided a preliminary assessment of their applicability in the miombo woodland system. A targeted research program was conducted in order to assess the longer term aspects of CF and IEM. The results of the supporting studies were integrated into the Farmer Field School (FFS) program which was used by farmers and Communities

(ii) Capacity Building. The project was expected to train 50 local extension staff in the concepts and application of CF and IEM, and the facilitation of FFS. In addition, through national and local workshops, the project sought to increase the awareness of policy makers and national and local government staff of the need for an IEM approach to agriculture as well as increase their capacities to include ecological principles in agricultural planning and extension activities. Through these activities, it was expected that the project would contribute to the mainstreaming of IEM concepts in policy and decision making processes.

(iii) Promotion of Sustainable Land Management in Mkushi and Serenje Districts. Using FFS as a form of participatory extension, the project was expected to train and support communities in Mkushi ans Serenje districts in order to enable them to shift from chitemene to sustainable land management. In the FFSs, farmers and communities were expected to experiment themselves with potentially suitable CF and IEM techniques, and be supported with implementation of these techniques that match best with their needs and local environment. It was anticipated that, as a result of the project, some 6,000 farmers would adopt CF and IEM. Based on the average per capita slash and burn area in the woodlands of the two participating districts, the approach was expected to result in the elimination of slash and burn practices in an aggregate area of 170,000ha. On the area released from slash and burn agriculture, the project was expected to support community based IEM determined by the communities themselves such as fire control

and agro-forestry. The total carbon sequestration as a result of the project was estimated at 958,000 tonnes.

(iv) Scaling up of the Sustainable Land Management approach. Based on the results stemming from the FFS cum CF and IEM approaches developed under the project, this component was expected to promote the application of sustainable land management in other parts of the miombo woodlands in Zambia.

3. Outcome Indicators

The project monitored the following output indicators:

Indicator	**Actual**	**Target**
Number of extension staff trained in CF, IEM and FFS	46	50
Number of FFS implemented	325	300
Number of farmers that participated in FFS	8,625	8,000
Number of female farmers that participated in FFS	3,221	4,000
Depots with lime bags	0	2
Number of farmers adopting CF including liming	Not Known	6,000
Amounts of lime purchased by farmers with project support	Nil	2,200 tonnes
Hectares under CF	400	6,000
Number of communities that have implemented fire controls	Not monitored	325
Number of communities that have started agroforestry	Not monitored	325
Tonnes of Carbon sequestered (estimate)	90	958,000
Area of Miombo woodland released from slash and burn	540ha	168,000ha

4. Other Significant Changes in Trust Fund Design

The anticipated co-financing from ASIP (IDA project) of $350,000 did not take place. It was expected that a follow on project would be prepared and become effective shortly after the closure of ASIP I in December 2001. A follow on project was never agreed and prepared. Therefore the necessary funding to extension to facilitate promotion of sustainable land management and scaling up of these activities in other miombo woodland areas was not there. Limited funds were available from government and this hampered efforts to carry out these activities.

C. OUTCOME

1. Relevance of TF Objectives, Design and Implementation

One of the goals of the project was the improvement of the food security of the local population. In order to achieve this and other goals, the project was expected to promote a shift in land management from the currently practiced chitemene system to a sustainable land management system, based upon IEM and CF principles. This in turn would raise the productivity of

smallholder farmers. This objective ties with the Government's Fifth National Development Plan objective of reducing poverty and achieving growth by raising the productivity of smallholder farmers through appropriate technologies such as conservation farming.

2. Achievement of TF Development Objective

The achievement of the Trust Fund development objectives is rated ***moderately unsatisfactory.*** The project was expected to contribute to a reduction of carbon emissions by inducing a change from unsustainable slash-and-burn (chitemene) agricultural practices in the miombo woodlands to conservation farming practices thereby contribute to the conservation of globally significant biodiversity. The project was also supposed to improve the food security of the local population. The project has trained smallholder farmers in conservation farming practices and provided them with incentives to adopt the practices. The project also trained extension staff in CF technologies, carried out experimental trials for these technologies and encouraged the scaled up of the most promising technologies.

Most farmers interviewed at the end of the project were happy with the knowledge on CF and liming, which they had gained from the project through Farmer Field Schools. They thought this was the biggest asset they were going to remain with as the project reached the end. This demonstrated the effectiveness of the participatory extension activities employed by the project. Empirical data however, shows that only 400 hectares were under conservation farming compared to a target of 6,000. There is a difference between what the farmers claimed to have been taught and what they were practicing in their fields ranging between 21 percent for planting basins to 46 percent for liming. It is expected that there will be a time lag between the farmers' appreciation of CF principles and application and adoption of CF when actual benefits accrue to the farmers. The reasons for this are that most farmers hesitate to implement CF due to risk aversion while at the same time the CF methods of land management need time to take effect.

3. Efficiency

An economic and financial analysis was not done for this project. The project was under implementation between October 2002 and May 2006 and benefited from two extensions of closing dates. The project was therefore under implementation for 5 years 7 months. This is not unexpected because the adoption of new technologies by farmers requires time to be firmly anchored in the farming systems of smallholder farmers. The project was expected to have global benefits by way of carbon sequestration and protection of biodiversity. The total carbon that was expected to be sequestered was estimated at 958,000 tonnes with a total value of US$4,790,000 (at $5 per tonne of carbon sequestered). Assuming that farmers who declared to have started practicing CF in their fields, giving up slash and burn, each farmer using 28 ha of woodlands over a twenty year period and raising the cultivated area instantly to 2 ha, a total of 1,199,000

tonnes of carbon would be sequestered. This would represent a benefit value of US$5,995,000 (see attached report). However, it is not possible to predict whether adoption of CF technologies will be sustained over the twenty year period.

4. Development Impacts, including those that are Unintended/Unrelated to TF Objectives

Reduction of Carbon Emissions

The Farmer Field School (FFS) survey carried out at the end of the project points to a shift towards reducing the practice of "slash and burn" (chitemene) in some of the agricultural camps. The question as to which factors promote the adoption and to what extent remains a difficult one. Two polar extremes seem to develop in the region. On the one side, 30% of the sampled camps FFS claimed that the practice of chitemene has already come to an end in their camp. This was the case in 3 agricultural camps of the Mulembo block in Serenje, and 6 FFS in the Mkushi district. This situation occurs where population densities surpass sustainability levels that have led to a collapse of the system. In other words, farmers move to permanent fields- much less extensive farming systems almost by default. Opposite in the more infrastructural removed thinly populated areas, chitemene seems to continue. The natural growth of the population seems to enforce the polarity. In addition, settlers from outside the districts are reported to increase in numbers, and these will move to yet unclaimed land. This brings up the issues of "additionality" and "leakage". In short, additionality requires that mitigation is a result of the project, in cases where mitigation already occurs there is no real emission mitigation over the "business as usual" situation. Leakage occurs through activity shift, e.g. the project causes deforestation outside the project area. Assuming that farmers who declared to have started applying CF in their own fields, giving up Chitemene, each farmer using 28 ha of woodlands and raising the cultivated area instantly to 2 ha, a total of 1,199,000 tonnes Carbon would be sequestered over the 20 year period from the start of the project. (see Annex 4 of the attachment for calculation).

Project impact on food security

Most FFS farmers appreciated the knowledge they obtained through the project. When asked to give evidence of the better ways of farming they had learned, they talked about higher yields. Figure 3 gives the combined picture of the food situation in Mkushi and Serenje for the 2004/05, 2005/06 and 2006/07 seasons. Sixty-four percent said they had more than enough food for their home consumption and 24% said they had enough food. This is in agreement with 90% of the extension officers who said they were of the opinion that the farmers they worked with had enough food. In the 2004/5 season the farmers did not have enough food mainly because of the drought in that year.

Project impact on biodiversity

The benefits from reduced chitemene, in terms of biodiversity improvements are obvious and this is expected from this project. The other substantial biodiversity impact was expected from the application of IEM principles. Unfortunately training of extension workers in IEM was late. In the first two years of the project, very little IEM was practiced in FFSs. In the past two years there has been a deliberate move to establish more IEM FFSs. IEM puts emphasis on non-timber forest products (NTFP) including bee keeping, mushroom and fruit-harvesting. Bee keeping was there right from the beginning of the project but the number of bee hives seem to have increased with growing interest from the farmers. According to the 2007 Annual Project report, in Mkushi there were 37 IEM FFSs while in Serenje there were only 6 IEM FFSs. The type of activities were livelihood activities which were to reduce the overdependence by communities on natural resources. The main areas of concern were catchment protection, forest protection and the protection of wild life in the GMAs. All these efforts are expected to have a positive impact on biodiversity. Farmers themselves were investing in goat rearing, chickens and other items. This is indicative of the sustainability of these activities.

5. Overall TF Outcome

Overall outcome rating is ***unsatisfactory***. Empirical data shows that only 400 hectares were under conservation farming compared to a target of 6,000. This is a significant under achievement especially when it is considered that 8,625 have participated in the Farmer Field Schools. There is a difference between what the farmers claimed to have learnt and what they were practicing in their fields ranging between 21 percent for planting basins to 46 percent for liming. In addition to the time lag between the farmers' appreciation of CF principles and application and adoption of CF where actual benefits accrue to the farmers, other factors come into play such as incentives for adoption, other complementary technologies, competing government subsidy programs and farmers' risk aversion to adopt new technologies. Generally adoption of land management technologies take time while low population densities play a role.

D. RISK TO DEVELOPMENT OUTCOME

1. Follow-On Results and/or Investment Activities

Not Applicable.

2. Replicability

The project was designed with hindsight that funds for replication in the third and fourth years would come from co-financing from an IDA credit which had a national coverage. However, a

follow on project to the Agricultural Sector Investment Project (1996-2001) did not take place and when it eventually did years later, it did not have a component to support the scale up activities. Moreover, replication was compromised by repeated delays in capacity building, the poor logistics of lime, fertilizer and seed also related to FMU procedures, communication problems with partners and stakeholders, and above all poor execution of M&E at the project management level.

3. Overall Risk to Development Outcome

Significant. Although farmers have learnt the conservation farming techniques and the benefits of liming, the adoption rates have been low with only 400 ha under CF out of a target of 6,000 ha. The Trust Fund activities are unlikely to be sustained for much longer as farmers will fall back to technologies that they are most familiar with. However, through continuous experimentation, it is likely that the farmers could improve the technologies to derive greater benefits.

E. PERFORMANCE

1. Bank

Bank performance is rated ***satisfactory***. Formal supervision missions were held every six months but this was intercepeced by the TTL's constant contact with the project staff and other sectoral clients. The missions included experienced operational and fiduciary staff. Each aide memoire had an annex of agreed action and next steps. This was designed to help project team to easily follow up agreed actions.

2. Recipient (for Recipient-executed TFs only)

Satisfactory. The recipient executed the activities well. Supporting studies were all successfully completed, training of trainers was completed while training of other staff was successful. Targeted research was carried out successfully and the most appropriate technologies and agronomic practices were recommended. The target number of farmer field schools and farmers attending these schools was mostly met. However, adoption rates were low because of reasons beyond the recipient’s control. Ecosystem management was not given as much attention as conservation farming largely because of the skills bias of the extension workers. It was difficult to implement the matching grant sub-component because the farmers were not able to raise the matching contribution. Scaling up of the project activities in other similar ecosystems was not possible because of lack of resources.

F. LESSONS LEARNED / RECOMMENDATIONS

- Farmer Field Schools proved an effective participatory learning method for farmers to acquire knowledge and experience in new farming technologies. Farmers are able to grasp the lessons clearly. However, this is not enough for adoption. Adoption appears to require sustained effort of MACO to facilitate timely inputs when markets are not efficient;
- Farmers who have been more exposed in life are able to start practicing what they have learned faster than those who are less exposed. Such farmers could be used effectively as lead farmers;
- Important factors affecting technology uptake are: availability of implements and inputs associated with the technology, failure to demonstrate higher yields with the new technology, agronomic difficulties faced on application of new technology eg. more weeds in CF fields for the first few years, and the socio-economic setting of the farmer. The implements and inputs associated with a particular technology must be made available;
- When incentives to the facilitators lead to increased numbers of FFSs it might affect the quality of the FFS learning cycle.
- It is difficult to understand adoption of new technologies in the absence of proper economic and financial analysis.

G. ICM PROCESSING AND COMMENTS

1. Preparation

TTL at Approval: Tekola Dejene
TTL at Closing: Alex Mwanakasale
Comment of TTL at Closing:
Prepared by (if other than TTL):
Date Submitted to Approving Manager:

2. Approval

Manager:
Date Approved by Manager:
Manager's Comment:

3. TFO Evaluation of ICM Quality

TFO Reviewer:
TFO Rating on the Quality of ICM (Satisfactory or Unsatisfactory)
Comment and Justification for Rating Given by TFO: