



United Nations Environment Programme

**TERMINAL EVALUATION OF GEF PROJECT “CONSERVATION AND
USE OF CROP GENETIC DIVERSITY TO CONTROL PESTS AND
DISEASES IN SUPPORT OF SUSTAINABLE AGRICULTURE”
GEF ID 4983**

Evaluation Office

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Acknowledgements

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ABBREVIATIONS

BSP	Bali Strategic Plan (of UNEP)
CBD	Convention on Biodiversity
CSIRO	Commonwealth Scientific Industrial Research Organisation (Australia)
EA	Executing Agency
ESPA	Ecosystem Services for Poverty Alleviation
FAO	Food and Agriculture Organisation of the United Nations
GEF	Global Environment Facility
GEFSec	Global Environment Facility Secretariat
IA	Implementing Agency
IAV	Institut Agronomique et Vétérinaire (Morocco)
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
INIAP	Instituto Nacional Autónomo de Investigaciones Agropecuarias (Ecuador)
IPM	Integrated Pest Management
IPGRI	International Plant Genetic Resources Institute (Bioversity International)
IRRI	International Rice Research Institute
ISC	International Steering Committee
M&E	Monitoring and Evaluation
MP	Member of Parliament
MTS	Medium Term Strategy (of UNEP)
NARS	National Agricultural Research Systems
NGO	Non-Governmental Organisation
NSC	National Steering Committee
OVI	Objectively Verifiable Indicators
PDF	Project Development Facility
PMU	Project Management Unit
POW	Programme of Work (of UNEP)
ROtI	Review of Outcomes to Impacts
SDC	Swiss Development Cooperation
SMART	Simple, Measurable, Accurate, Reliable, Time-bound
SPMO	Senior Programme Management Officer
TE	Terminal Evaluation
TOR	Terms of Reference
UNEP	United Nations Environment Programme
UPWARD	User Perspectives Within Agricultural Research and Development

PROJECT IDENTIFICATION TABLE

PROJECT ID: GF/1030-07-01 (4983)

COUNTRIES: China, Ecuador, Morocco and Uganda

GEF AGENCY: UNEP

OTHER EXECUTING AGENCIES: Yunnan Agricultural University, Kunming, Yunnan, China; Instituto Nacional Autónomo de Investigaciones Agropecuarias (INIAP), Quito, Ecuador; Institut Agronomique et Vétérinaire (IAV) Hassan II, Rabat, Morocco ; National Agricultural Research Organisation, Entebbe, Uganda; Bioversity International, Rome, Italy

DURATION: 3 years

GEF FOCAL AREA: Biodiversity

GEF OPERATIONAL PROGRAM: OP 13

GEF STRATEGIC PRIORITY: BD-2, BD-4

PIPELINE ENTRY DATE: 13 June 2003

ESTIMATED START DATE: 1 September 2006

ESTIMATED END DATE: 28 February 2011

BUDGET TOTAL (including Block B): 3,761,148 (GEF); 4,644,345 (Co-Funding)

IA FEE: 9%

EXECUTIVE SUMMARY

1. Around the world, smallholder farmers continue to manage and to rely on a broad array of crops and crop varieties to meet their livelihood needs. Reliance on these resources is especially important in the developing countries of the tropics and subtropics and particularly among economically disadvantaged, politically marginalized, and culturally distinct farmers. Although the array of varieties and of varietal mixtures maintained in these communities may still be large, it is generally acknowledged to be dwindling for a variety of reasons. Among the important threats that the ongoing loss of traditional crop varieties poses is farmers' diminished ability to cope not only with current pest and disease problems, but especially their capacity to adapt to new pathogens and pests. Current widespread methods and practices to control pests and diseases, including breeding resistant varieties, the use of insecticides, and biological control methods are often of limited use and accessibility in smallholder communities because of economic, political and geographic reasons. Pesticide use is increasing rapidly in many parts of the world, and is leading to increasingly harmful impacts on both human and environmental health. The UNEP/GEF-supported project "Conservation and Use of Crop Genetic Diversity to Control Pests and Diseases in Support of Sustainable Agriculture" seeks to conserve crop genetic diversity, local and scientific knowledge about this diversity, as well as to develop methods of managing crop diversity to help smallholders cope better with pests and diseases. Its goal is to enhance the conservation, use and knowledge of crop genetic diversity not only by farmers, but also by local and national scientific and policy institutions and ultimately to increase food security and improve ecosystem and human health.
2. This project was originally designed and technically cleared as a continuous five-year project however, the GEF Sec decided to fund it in phases. The Outcomes, Outputs and Objectively Verifiable Indicators (OVIs) of the five- year project have been maintained. However, when the project was divided into phases, a set of specific OVIs and milestones were agreed upon for the three-year period of Phase 1. This Terminal Evaluation was undertaken near the end of Phase I. None of the original Outcomes have yet been achieved. At this stage, the project, as approved by the GEF Council and stated in the project document, is expected to have achieved a certain pre-defined percentage of each of those original outcomes.

Attainment of Objectives and Planned Results:

3. Due to the history of this project outlined above, and the stage at which this Terminal Evaluation is being conducted, the 20 indicators listed in Annex B1-1 of the Project Document were the most specific, objectively verifiable, and quantifiable standards against which the state of "attainment of objectives and planned results" of this project could be assessed. The information used included; direct observations of project activities in the field, interviews with project directors, managers, advisors, researchers, outreach personnel and others on global, national, and site specific project levels. Interviews were held with farmers, government and NGO functionaries, and other stakeholders in two of the four participating countries, and document reviews were completed, including the various country project reports.
4. Table 1 indicates the project's performance in achieving the level of completion that was foreseen for each of the twenty indicators. The "% Completion Expected Year 3" is again

taken from Annex B1-1 of the Project Document and derived from the project's Logical Framework and Work Plan.

Table 1: Objectively Verifiable Indicators: % Completion

Indicator	% Completion Expected Phase 1	% Attained
1. Guidelines for Farmers Group Discussions developed, published and used	100%	100%
2. Protocols for participatory assessment with lab & field analysis published and made available	100%	100%
3. Methods and tools to estimate value of crop genetic diversity in reducing loss from pests and diseases tested & available	60%	75%
4. One diversity-rich practice developed for each crop	20%	20*
5. Guidance on substituting diversity-rich practices for pesticides submitted to agricultural and environment development sectors	20%	20+
6. One farmer association is established or enhanced per site	30%	50%
7. Two male and female farmer representatives in each site participate in national committees/ decision making on diversity practices	0%	0**
8. Four Partner researchers have in-house expertise on all relevant disciplines	30%	50%
9. Site Coordination Committees established in each country	100%	100%
10. Two researchers in each country with expertise on participatory approaches	100%	100%
11. One participatory research training program at provincial level in each country	30%	***
12. An International Agrobiodiversity Training Centre is operative in China	100%	100%
13. Agricultural extension packages include diversity-rich options to manage pest and disease pressures in each country	10%	10%****
14. Policy briefs and extension manuals that demonstrate economic value for policymakers and farmers	10%	30%
15. Breeding, pathology, and entomology programmes in each country include use of diversity to manage pest and diseases	10%	10%
16. Four national and three regional conferences on diversity and pest and disease management organized	10%	10%*****
17. National education sectors have materials on diversity-rich methods to manage pest and diseases in curriculum	0%	30%
18. Two recommendations on establishment or improvement of benefit sharing protocols are submitted to policy makers	0%	30%
19. Two agreements for benefit sharing among farmer communities and national programs developed and adopted	10%	30%
20. Project Management	Yrs 1-3	Yrs 1-3

* Significant progress seen, experiments are in place, together with cross-site and research station trials to test different methods.

** Although not formally "decision-making", significant, active participation by men and women farmers in committee meetings reported

*** Information is already available, although not formally compiled into a training package

**** Experiments done, people trained, still needs to be "formalized" as package

*****All required information to organize such conferences has been collected and prepared, and a global conference was organized for all partners.

- As Table 1 indicates, in the case of six of the 20 indicators (i.e., 30%), the project attained exactly the level of completion that was expected. In considering another eight indicators (40%), the project actually exceeded the expected completion level. Only in the case of six, did the level attained fail to reach the expected level, although in several cases, the results are actually quite ambiguous.

Conclusions and Ratings.

- The project was rated Highly Satisfactory or Satisfactory on all parameters for which an evaluative judgment was made. Overall, this is an exceptional project, planned by a team of experienced and innovative people at both the global and national levels, designed

with skill and vision, and implemented with dedication. While there were several shortcomings in implementation, and many parameters assessed in the terminal evaluation need to be interpreted in the context of the unexpected "phasing" of the project, the overall rating for Phase 1 is Highly Satisfactory. If fully funded and allowed to achieve its full potential this could be a project with major outcomes and impacts.

Recommendations

- 1. A Second Phase of the project be swiftly approved and fully funded**, with preferably another three years of activities scheduled. If a Second Phase is not funded, a significant amount of important work will be lost with little possibility of realizing the full potential of many of the trials, experiments, training, outreach, and analysis that have been initiated and implemented over the first three years.
- 2. The Project includes more trained and experienced social scientists specialized in relevant sub disciplines or ethno botanists** in any follow-on phase.
- 3. The Project put more emphasis on identifying and building upon local knowledge and practice in agro biodiversity conservation, especially in the area of social networks** in any Second Phase.
- 4. In any next phase, the Project should encourage all national projects to adopt management structures with only one clear coordinating institution** as these appear to be have been the more effective and efficient choice.
- 5. The Project clarify in its on-farm work, how both inter-specific and intra-specific crop diversity affect pest and disease problems and how these may be linked by forging stronger ties during the next phase between this project and other on-going IPM programs and scientists who currently concentrate on inter-crop and inter-species diversity to control pest and disease damage.**

INTRODUCTION AND BACKGROUND

7. Around the world, smallholder farmers continue to manage and to rely on a broad array of crops and crop varieties to meet their livelihood needs. Reliance on these resources is especially important in the developing countries of the tropics and subtropics and particularly among economically disadvantaged, politically marginalized, and culturally distinct farmers. Although the array of varieties and of varietal mixtures maintained in these communities may still be large, it is generally acknowledged to be dwindling for a variety of reasons, among them a lack of official and scientific support for the cropping systems that employ this biological richness. The loss of crop diversity threatens to undermine the relative sustainability of smallholder agriculture, to limit their capacity to cope with a great variety of problems, as well as diminish their potential to respond to new opportunities.
8. Among the important threats that the on-going loss of traditional crop varieties poses is farmers' diminished ability to cope not only with current pest and disease problems, but especially their capacity to adapt to new pathogens and pests. The introduction or migration of previously absent or minor pests and pathogens, or mutations of existing ones that can seriously damage crops, can be expected to accelerate with shifts in climatic patterns and increasing climate variability. Damage by crop pests and diseases is estimated to already account for the loss of up to 30% of the world's annual harvest. Current widespread methods and practices to control pests and diseases, including breeding resistant varieties, the use of insecticides, and biological control methods are often of limited use and accessibility in smallholder communities because of economic, political and geographic reasons. Other problems persist. Pesticide use is increasing rapidly in many parts of the world, and is leading to increasingly harmful impacts on both human and environmental health.
9. The UNEP/GEF-supported project "Conservation and Use of Crop Genetic Diversity to Control Pests and Diseases in Support of Sustainable Agriculture" seeks to conserve crop genetic diversity, local and scientific knowledge about this diversity, as well as developing methods of managing crop diversity to help smallholders cope better with pests and diseases. Its goal is to enhance the conservation, use and knowledge of crop genetic diversity not only by farmers, but also by local and national scientific and policy institutions and ultimately to increase food security and improve ecosystem and human health. The project seeks to accomplish these goals by minimizing on-farm pest and disease damage while also reducing reliance on pesticides.
10. If the project succeeds in providing farmers and National Agricultural Research Systems (NARS) researchers with the tools and practices needed to better manage local crop (intra-specific) genetic diversity, farmers' options to combat pest and disease on-farm will be expanded. The project also aims to develop tools to determine when and where intra-specific crop diversity can be integrated with existing farmer knowledge, beliefs and practices and with advances in the analysis of crop-pest/disease interactions to best manage pest and disease pressures. Integrated Pest Management (IPM) is a widely recognized ecosystem approach to crop production and protection that combines different management strategies and practices to grow healthy crops and minimize the use of pesticides. Until recently, IPM methods have concentrated on using agronomic techniques to modify the environment around predominantly modern cultures to reduce the need for pesticides, making limited use of the opportunities offered by the effective deployment of the intra-specific diversity of local crop varieties themselves. The impact

of IPM strategies could be greatly enhanced by including and scaling-up the use of the intra-specific diversity among cultivars maintained by some of the world's most vulnerable, economically marginalized and politically poorly served farmers.

Project Objectives, Outcomes, and Indicators

11. This project was designed and technically cleared by GEFSEC as a continuous five-year project. The original project objectives were to be achieved at the end of the full five years. Due to an unforeseen shortage of funds at the end of GEF 3, the GEF Secretariat requested that the project be phased, with only a three-year Phase I funded at that time. The new arrangement stipulated that a Terminal Evaluation be undertaken at the end of Phase I and that re-application would be necessary for approval and funding of a Phase II. The Phase I, as approved by the GEF Council and stated in the project document, is expected to achieve only a certain percentage of the outcomes by the end of the first three years. The Outcomes, Outputs and OVI's of the five- year project were maintained however, with specific milestones noted for the current Phase 1 three-year period. The project's performance has been assessed against these three year milestones.
 12. The **development objective** of this project as stated in the Project Document is to conserve crop genetic diversity in ways that increase food security and improve ecosystem health. The **immediate object** is to enhance conservation and use of crop genetic diversity by farmers, farmer communities, and local and national institutions to minimize pest and disease damage on-farm. The original project (for both Phases I & II) had three anticipated outcomes:
 - Outcome 1:** Rural populations in the project sites benefit from reduced crop vulnerability to pest and disease attacks.
 - Outcome 2:** Increased genetic diversity of target crops in respect to pest and disease management.
 - Outcome 3:** Increased capacity and leadership abilities of farmers, local communities, and other stakeholders to make diversity-rich decisions in respect to pest and disease management.
- Impact indicators.** Measurement of progress toward and achievement of these outcomes is based on seven impact indicators as stated in the project document. Again the specific impact indicators were to be achieved at the end of the original, five-year project.

- i. Food insecurity is reduced for 10% of the families in 31 local and indigenous communities.
 - ii. Crop yields are increased by 10% from reduced crop losses from disease and pest damage for at least 20% of the farms (equivalent to 52,600 ha) in project sites.
 - iii. Diversity-rich practices replace pesticide use to minimize crop damage for 15% of project site regions (equivalent to 106,900 ha).
 - iv. Diversity for resistance is increased by 10% on 30% of farmer fields in the project sites (equivalent to 78,900 ha).
 - v. Use of crop genetic diversity to manage pest and disease pressures occurs on 20% of the farms (equivalent to 142,600 ha) in the project site regions in four countries.
 - vi. At least 20% of the farmers of the project site regions (equivalent to 6,200 families) implement diversity-rich methods developed in the project to increase use of crop genetic diversity to manage pest and disease pressures on-farm.
 - vii. At least two male and female farmer representatives in each site have participated in national committees or decision making fora for planning and evaluation of diversity-rich methods to manage pest and diseases.
13. Because the duration of the project was reduced to three years for its first phase, these indicators were not used for the assessment of the achievements of the project as they are pitched at quite a high results level. However, these expected impacts were reviewed and employed to orient the evaluation and to assess the project more broadly, that is, to evaluate whether the project was moving in the general directions that these indicators imply and whether it seemed plausible that they would be achieved if a Phase II were to be carried out.

Project Components and Indicators: Phase 1

14. The project, as implemented, consists of a broad array of activities grouped into five principal activities/components:

Component 1: Criteria and tools to determine when and where intra-specific genetic diversity can provide an effective management approach for limiting crop damage caused by pests and diseases.

Component 2: Practices and procedures that determine how to optimally use crop genetic diversity to reduce pest and disease pressure.

Component 3: Enhanced capacity of farmers and other stakeholders to use local crop genetic diversity to manage pest and pathogen pressures

Component 4: Actions that support the adoption of genetic diversity-rich methods for limiting damage caused by pests and diseases

Component 5: Project Management

15. A number of Objectively Verifiable Indicators to assess the progress made in the activities that were grouped under these components were presented in the Project Document. The expected level of completion for each of these for each year was further specified. This evaluation made use of these indicators to assess progress toward achieving the expected impacts of the project. These are summarized in Table 1 below.

The twenty indicators are reproduced from Annex B-1: Phase I - Objectively Verifiable Indicators and Milestones (Years 1, 2 and 3 Of Project Implementation.)

Project Design and Management Structure

16. The Implementing Agency for this project is UNEP; Bioversity International, headquartered in Rome, serves as the project executing agency, coordinating at the global level activities in four participating countries: China, Ecuador, Morocco, and Uganda. The lead national executing agencies in the focal countries are: China: Yunnan Agricultural University, Kunming; Ecuador: Instituto Nacional Autónomo de Investigaciones Agropecuarias (INIAP), Quito; Morocco: Institut Agronomique et Vétérinaire (IAV) Hassan II, Rabat; and Uganda: National Agricultural Research Organisation, Entebbe. The participating countries all include areas of important crop genetic diversity and each also harbors a variety of types of resistance to important pests and diseases in their local crop cultivars maintained in traditional farming systems.
17. The project focuses on six crops: rice (*Oryza sativa*), maize (*Zea mays*), barley (*Hordeum vulgare*), common bean (*Phaseolus vulgaris*), faba bean (*Vicia faba*), banana and plantain (*Musa spp.*). All are important food crops in more than one area of the developing world with many of the world's poor depending on them for food and monetary income. All of the crops have been studied by a variety of scientists, but each is still represented in farmers' fields by a rich array of farmer-developed landraces. The particular choice of crops has allowed many of the project's results to be broadly applicable to a variety of situations, as the target crops are characterized by a number of different breeding systems. Each of the four participating countries has at least two of the target crops in common with one of the other countries.

Fig. 1: Project Sites and Crops

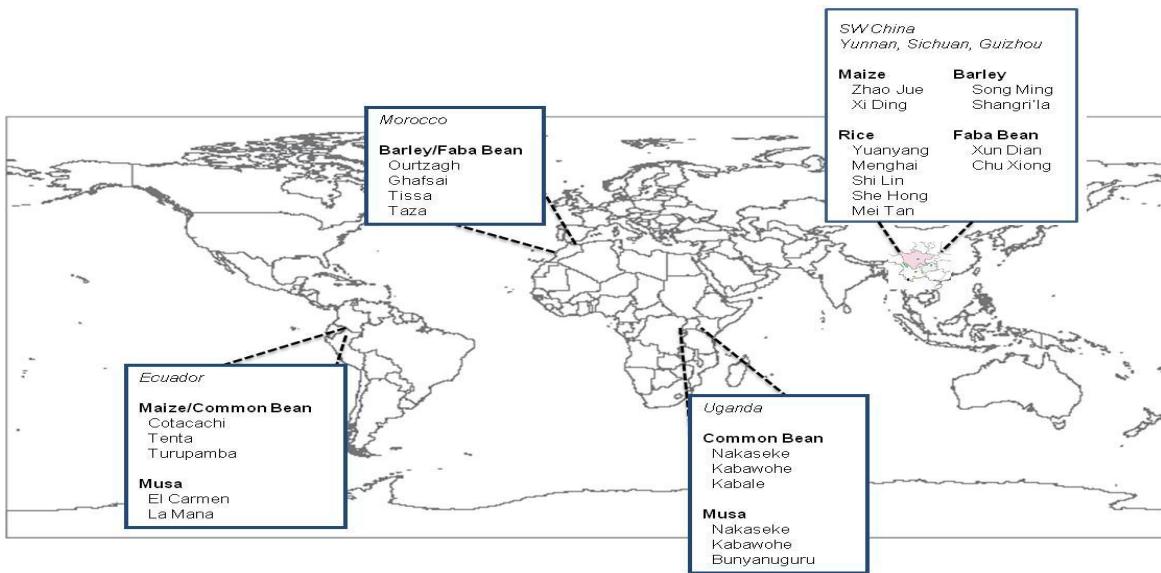


Figure taken from: "Programme for Crop Biodiversity to Reduce Poor Farmers' Vulnerability to Pest and Disease Damage Proposal submitted to the International Fund for Agricultural Development by Bioversity International"

18. Bioversity International staff oversees the Global Project Management Unit that is located at its headquarters in Rome, with a Senior Scientist directly supervising the project as Global Project Director. The Global Project Manager coordinates implementation of action plans and strategies in all the four countries and generally provides administrative leadership to the project team, acting also as the main project representative at the global level, and ensuring the delivery of outcomes. Figure 2 presents a schematic picture of the structure of the project at the global level.
19. An International Steering Committee (ISC) oversees project implementation. The International Steering Committee (ISC) comprises representatives from each National Steering Committee, the Global Project Director, representatives of the project's international partners (FAO, SDC, University of Kassel, Washington State University), a UNEP/GEF representative, and the Global Project Manager. The ISC meets each year to review progress and financial reports, assess annual summary progress reports, to provide policy guidance to the project, and assist the national units in developing links with other related projects, and overall guidance for the project implementation.
20. The project also relies on a team of Technical Advisors that includes both an extensive list of national experts representing a broad variety of expertise in relevant disciplines from each participating country as well as a group of international experts. The Technical Advisers have been employed to give advice and guidance on issues in the areas of plant population genetics, pathology, entomology, ecology, economics, participatory approaches, law and policy.

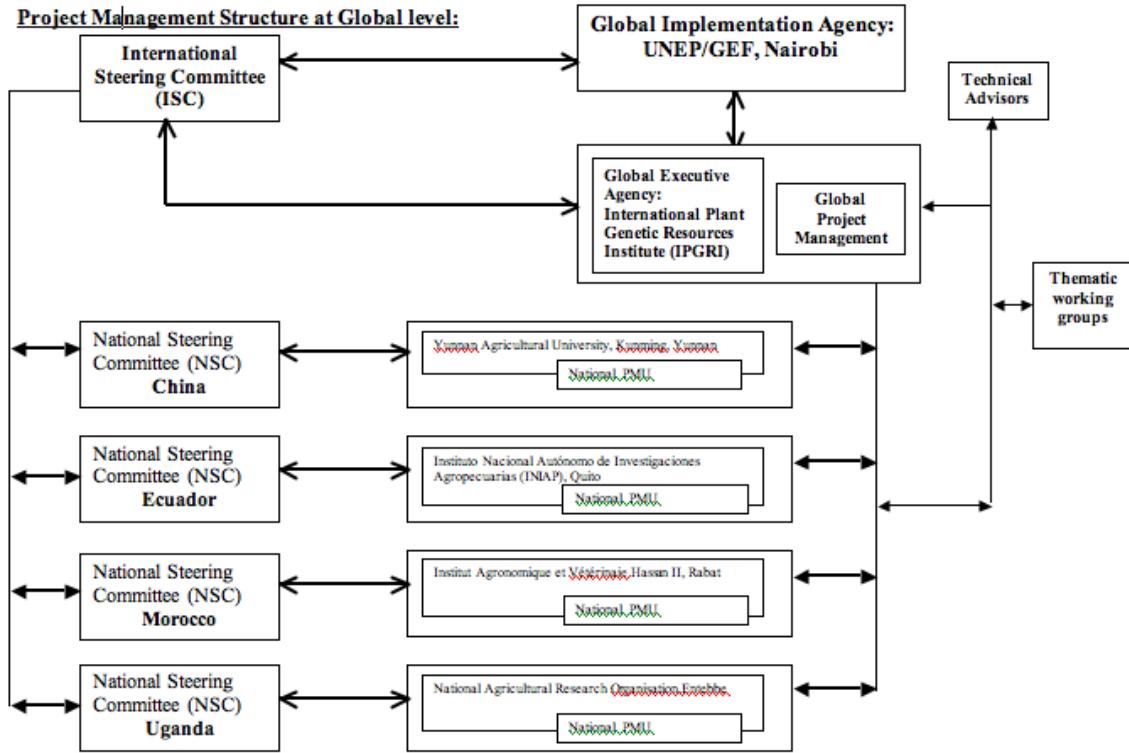


Fig 2: Project Management Structure at Global Level

Figure taken from Project Document, Annex E.

21. At the national level, the project's management structure is based upon each country's national policies and institutions. There are largely equivalent management structures in all four countries; these include a National Project Director for each country, National Project managers, and other support personnel. In China there is a somewhat more complex structure and more interlinked institutions. The implementation and execution arrangements were designed to coordinate and link project activities at all levels: global, national as well as at project site levels. Stakeholders and their institutions were originally identified through consultation and in each country include institutions and personnel with varying functions, disciplinary backgrounds, and expertise. The inclusion in National Steering Committees (NSCs) of broad national representation, including some high-level officials, was done to ensure visibility and effectiveness of the project and sustainability of the activities once the UNEP/GEF project was over.
22. The NSCs include representatives of their respective Ministries of Agriculture and the Environment (or a representative of the GEF Focal point), the National Executing Agency, as well as representatives from local institutions such as relevant NGOs, farmers organizations and/or farmers, representatives of the national Site Coordination Committee, the national Project Director, and the Project Manager. National Steering Committees meet twice a year.
23. As noted above, each country project also includes National Technical/Thematic Teams that bring together experts in the relevant disciplines and provide overall technical guidance, review protocols, methodologies and technical reports, and assist in building thematic capacity at site and local levels. Members of these teams are national and local, site-level experts. Each country project conducts its activities at specific sites and has

organized site-level teams. Each national project works at a varying number of sites: with China and Ecuador each managing six sites, Morocco, five, and Uganda, four. Although varying in number, each country employed an agreed-upon set of criteria to guide site selection. The criteria include environmental diversity, social cultural diversity of farming communities, intra-specific diversity of target crops, distribution of pest and pathogens, willingness of communities and local institutions to participate, local institutional capacity, and site access.

24. The four countries began the project with differing capacities and expertise available for developing methods and procedures to promote and enhance the use of crop genetic diversity to minimize pest and disease damage. This diversity of scientific expertise, and scientific conventions and approaches was reportedly planned in designing the project and was subsequently used as a resource by the project to promote valuable interchanges of experience, learning, and other synergies among the project's institutions, scientists, and those involved in training and outreach activities.

SCOPE, OBJECTIVE AND METHODS OF THE EVALUATION

25. This Terminal Evaluation assesses the performance and results of the Pest and Disease Project, Phase I, against the planned project activities and the specific verifiable indicators, at the global, national and local levels. The evaluation focuses on the three-year implementation period, but also includes some assessment of project planning and design. The objective of this Terminal Evaluation is to assess project performance and the implementation of planned project activities and determine the likelihood of future outcomes and impacts.
26. The Terms of Reference for the terminal evaluation of the project mandated a focus on the following key questions:
 1. Did the project manage to develop criteria and tools to determine when and where intra-specific genetic diversity can provide an effective management approach for limiting crop damage caused by pests and diseases in the participating countries?
 2. To what extent do the project outputs produced have the weight of scientific authority/ credibility, necessary to influence policy and decision-makers, to take actions, particularly at the national level, that support the adoption of genetic diversity-rich methods for limiting damage caused by pests and diseases?
 3. To what extent the project outputs produced increased capacity and leadership abilities of farmers and local communities to make diversity-rich decisions in respect to pest and disease management?
27. It is important to again note, however, that this project was designed as five-year project and that achievement of project objectives was to be realized at the end of that five-year period. The 3-year Phase I project is expected to deliver only a specified percentage of the original results. Thus although the Outcomes, Outputs and Indicators of the five-year project were maintained, milestones were specified for the current three-year phase. They are specified above, and in Annex B1 of the project document.
28. This Terminal Evaluation was conducted as an in-depth evaluation using a participatory mixed-methods approach, during which the UNEP/GEF Task Manager, key

representatives of the Executing Agency and other relevant staff were kept informed and frequently consulted. The evaluator also had multiple opportunities to consult with and seek guidance from the UNEP/GEF Task Manager on logistic and methodological issues, and communicated on several occasions with the UNEP Evaluation Office.

29. The findings of the evaluation are based on multiple approaches:

- I. A desk review of project documents including:
 - (a) The project documents, outputs, monitoring reports (including progress and financial reports to UNEP and GEF annual Project Implementation Review reports), the Report of the Mid-Term Review, and relevant correspondence.
 - (b) Notes from the International Steering Group meetings.
 - (c) Other project-related material produced by the project staff and partners, including various project Handbooks and Guidelines, proposals for further work, etc..
 - (d) And, the project web-site.
- II. Interviews with project management and technical support staff in Uganda and Ecuador, as well as with the International Steering Committee, and support personnel at Bioversity International headquarters in Italy.
- III. Interviews with intended users for the project outputs, including many farmers participating in the projects at multiple sites in Uganda and Ecuador, government officials and functionaries on many levels in the two countries, as well as representatives of other national and international organizations in both Uganda and Ecuador. Interviews were also conducted with representatives of donor agencies and other organisations to obtain additional information and opinions.
- IV. Field visits to Uganda and Ecuador to review project sites, interview local project personnel and partners, and stakeholders, and to observe a number of national project activities. A field visit was made to Uganda during the International Steering Committee (ISC) meeting to meet and interview all global and partner countries' ISC members and project coordinators and to observe the meeting and attend all discussions and presentations. That meeting also included observation of and interviews in demonstration sites, including observation of a large "diversity fair"¹, inauguration of a community genebank and a farmer field day. The field visit to Ecuador included visits to field sites, featuring observation of project activities at field sites, including a small diversity fair and farmer visits to demonstration fields.
- V. Visits to several institutions, both governmental and non-governmental including national projects' institutional partners in Uganda and Ecuador to interview partner scientists, observe laboratory experiments, interview staff, and meet with graduate students and other trainees.
- VI. Visit to Bioversity International's headquarters to obtain all relevant documents, to interview and obtain opinions on the project from both personnel who have been

¹ A “diversity fair” or “diversity seed fair” is an event that brings together farmers from a region to display and describe the crop varieties that they own or plant crop and often stimulates exchange of planting materials among farmers.

directly involved in the project, and those who have observed it only peripherally, and to discuss the project with the Project Director and the Project Coordinator who unexpectedly had to leave immediately following the ISC meeting, due to a family emergency, cutting off planned meetings and interviews.

VII. In-depth interviews with the UNEP/GEF Senior Project Management Officer in charge of this project.

30. The Annexes provide a list of the persons interviewed, the institutions visited and all the field sites visited in Uganda and Ecuador. As noted in the evaluation terms of reference, the evaluation seeks to provide insight into two basic questions: "what happened?" and "what would have happened anyway?" To answer the latter question satisfactorily would require data on specific social, economic, institutional and environmental baseline conditions and trends which were not readily available to inform the evaluation. Moreover, the fact that the project is being evaluated after a mere three years and thus has not yet had sufficient time to achieve all the outputs and outcomes that could be expected by Year 5, made these questions very challenging to answer. However, this evaluation attempts to identify what might have occurred anyway without the Pest and Disease Project. In this context, it is necessary to make assumptions about the use of agricultural biodiversity to combat pests and diseases and the conservation of those resources had the project not existed. It is assumed, for example, that in the absence of the Pest and Disease project, alternate mechanisms supporting the use of local agrobiodiversity for pest and disease management would not have come into being.

Limitations and Challenges in doing the Evaluation.

31. The budget and time frame allowed the evaluator to visit only 2 of the 4 participating countries. There were from all indications some somewhat different problems -- as well as successes -- in each of the countries; these unfortunately could not all be observed first-hand. Every attempt, however, was made to gather information on all relevant issues in China and Morocco through interviews. The attendance of the evaluator at the ISC meeting did make it possible to hold extensive interviews with at least two members of the management teams from each one of the participating countries.
32. The project is still at an early stage on the way to the desired outcomes, this makes estimation of the likelihood of achieving the desired global environmental benefits more challenging to estimate.

PROJECT PERFORMANCE AND IMPACT

33. This project is the object of a Terminal Evaluation undertaken at the end of its first phase. As anticipated, none of the original project outcomes have yet been achieved. At this stage the project, as approved by the GEF Council and stated in the project document, is expected to have achieved a certain percentage of each of the original outcomes. An objective assessment of "the extent and magnitude of any project impacts to date and determine the likelihood of future impacts", as required by the TOR is, at this stage, somewhat more speculative than it would have been had the original project been able to complete its entire planned work program. Despite the timing of the Terminal Evaluation, more than enough data to assess how well the project performed and whether it appeared to be headed in the right direction was found.

Attainment of Objectives and Planned Results

34. **Effectiveness:** The twenty indicators listed in Annex B1-1 of the Project Document were the most specific, objectively verifiable, and quantifiable standards against which to objectively and quantitatively assess the state of "attainment of objectives and planned results" of this project. The information used to arrive at this assessment included direct observations of project activities in the field, interviews with project directors, managers, advisors, researchers, outreach personnel and others on global, national, and site specific project levels, as well as interviews with farmers, government and NGO functionaries, and other stakeholders in two of the four participating countries. Much of the data on these matters was also obtained from documents, including the various country project reports.
35. Apart from the specific examination of the completion of activities and the project's performance with respect to the "phase 1 indicators", a more general assessment of whether the project appeared to be moving toward an eventual achievement of its Outcomes and Impacts at the end of any Second Phase was made. An attempt was made to determine whether the "key questions" that the evaluation's Terms of Reference posed could be answered in the affirmative if the project were extended for the full five-year period.
36. Table 1 indicates whether the project succeeded in achieving the level of completion that was foreseen for each of the twenty indicators. The "% Completion Expected Year 3" is again taken from Annex B1-1 of the Project Document and derived from the project's Logical Framework and Work Plan.

Table 1: Objectively Verifiable Indicators: % Completion

Indicator	% Completion Expected Phase 1	% Attained
1. Guidelines for Farmers Group Discussions developed, published and used	100%	100%
2. Protocols for participatory assessment with lab & field analysis published and made available	100%	100%
3. Methods and tools to estimate value of crop genetic diversity in reducing loss from pests and diseases tested & available	60%	75%
4. One diversity-rich practice developed for each crop	20%	20*
5. Guidance on substituting diversity-rich practices for pesticides submitted to agricultural and environment development sectors	20%	20+
6. One farmer association is established or enhanced per site	30%	50%

7. 2 male and female farmer reps in each site participate in national committees/ decision making on diversity practices	0%	0**
8. Four Partner researchers have in-house expertise on all relevant disciplines	30%	50%
9. Site Coordination Committees established in each country	100%	100%
10. 2 researchers in each country with expertise on participatory approaches	100%	100%
11. One participatory research training program at provincial level in each country	30%	***
12. An International Agro biodiversity Training Centre is operative in China	100%	100%
13. Agricultural extension packages include diversity-rich options to manage pest and disease pressures in each country	10%	10%****
14. Policy briefs and extension manuals that demonstrate economic value for policymakers and farmers	10%	30%
15. Breeding, pathology, and entomology programmes in each country include use of diversity to manage pest and diseases	10%	10%
16. Four national and three regional conferences on diversity and pest and disease management organized	10%	10%*****
17. National education sectors have materials on diversity-rich methods to manage pest and diseases in curriculum	0%	30%
18. Two recommendations on establishment or improvement of benefit sharing protocols are submitted to policy makers	0%	30%
19. Two agreements for benefit sharing among farmer communities and national programs developed and adopted	10%	30%
20. Project Management	Yrs 1-3	Yrs 1-3

* Significant progress seen, experiments are in place, together with cross-site and research station trials to test different methods.

** Although not formally "decision-making", significant, active participation by men and women farmers in committee meetings reported

*** Information is already available, although not formally compiled into a training package

**** Experiments done, people trained, still needs to be "formalized" as package

*****All required information to organize such conferences has been collected and prepared, and a global conference was organized for all partners.

37. As Table 1 indicates, in the case of eight of the 20 indicators (i.e., 40%), the project attained exactly the level of completion that was expected. In considering the other indicators the project actually exceeded the expected completion level.
38. Viewing the results in terms of completion of various components of the project, the completion rate is satisfactory, with major progress made in all components. Indicators 1 through 3 that measure progress in completion of the projects grouped under the project's Component 1: "*Criteria and tools to determine when and where intraspecific genetic diversity can provide an effective management approach for limiting crop damage caused by pests and diseases*", have all been satisfactorily attained and in one case, exceeded. This was verified through the publication and translation into French, Spanish and Chinese of an agreed set of published guidelines and protocols (Crop genetic diversity to reduce pests and diseases on-farm) that was used for each crop by all countries for all 22 project sites. In some sites more than one crop was considered making a total of 33 where the guidelines were developed. Two different types of tools/methods were developed to estimate the value of crop genetic resources to reduce pest and disease damage: "A damage abatement" method (to examine trade-offs in using crop varietal diversity versus other pest and disease management methods) implemented in China, Ecuador and Uganda and Choice experiments (non-market value and farmers willingness to pay for the use of diversity to manage pests and diseases) in China. Indicators 4 and 5, which measure the completion of Component 2: "*Practices and procedures that determine how to optimally use crop genetic diversity to reduce pest and disease pressure*", gave mixed results: indicator 4 activities could be considered 20% completed (as was expected for this Phase of the project), because, as yet, no new practice or procedure could be documented as being adopted by a significant population of farmers, although much promising work in this regard has been done. Indicator 5 was more than satisfactorily met with performance

exceeding the planned 20% completion specified in the project document, as all farmer and extension working training included a component on the use of crop varietal diversity as an alternative to pesticide use based on the cross site trials and on station experiments. The indicators of success in advancing Component 3: *Enhanced capacity of farmers and other stakeholders to use local crop genetic diversity to manage pest and pathogen pressure*, that is, Indicators 6 through 12, all achieved their planned results. More than one farmer association was in place in China and Ecuador, participation of male and female farmers in committees was reported, particularly during cross-site visits and farmer visits to research stations. Project reports and interviews indicate that in-country capacity has been strengthened; all site-level committees were put in place, and continue to carry out some limited activities with funds from other donors after the completion of this project. Component 4: *Actions that support the adoption of genetic diversity-rich methods for limiting damage caused by pests and disease*, shows up as Indicators 13 through 19, the expected percentage to be completed for this final component was satisfactory, as the majority of work under this component was planned for the second Phase and was not expected to be completed during this first Phase period. Thus, information is now being made available for extension packages but would not be taken up until the next Phase. Likewise experiments have been done and people have been trained, and the delivery of formal "packages" will be done during the next Phase. National and regional conferences were not planned until Phase II, but during this phase preparation was made and materials compiled. A global conference that compiled national work was held before the completion of Phase 1 indicating that there was even an "overachievement" of this work. Component 5 corresponds to Indicator 20 (not formulated as an indicator) and focuses on project management; the other indicators combined attest to the fact that sound project management has characterized the project over the three years of implementation.

39. Overall, the results presented in Table 1 provide a strong and objectively verified indication that the project has been very largely on track and that by Year Three had made more than satisfactory progress in conducting a very broad array of planned activities and made significant progress towards achievement of the intended outcomes.
40. Despite these specific levels of achievement which, again, are in great measure, highly satisfactory, the evaluation found, as might be expected, considerable variation in rates of completion of activities and potential achievement of desired outcomes and impacts among specific activities, as well as site to site, and country to country. There are several notable instances of activities lagging behind and where the achievement of activity milestones was considerably less than anticipated. Two examples might be mentioned. Although each of these instances of delay was largely attributable to causes beyond the control of the project, both are more broadly instructive as they suggest some lessons to be learned. The two examples are: (1) The significant time needed to complete of on-farm experiments and farmer demonstration activities carried out in the banana/plantain (a perennial crop) focus zone of Ecuador, and (2) the delays caused by the need to repeat several significant amounts of experimental work, on farm and on station in Morocco, due to weather conditions that destroyed one year of experiments.
41. In the case of Ecuador, the evaluator had the opportunity to travel to the Pichilingue Station in Ecuador in July 2010, to observe the on-farm, experimental field and laboratory work being done on bananas and plantains in the region, specifically in the project site of La Maná. This particular site has been considerably delayed in its work because of apparently unforeseen difficulties in initially obtaining a genetically diverse set of planting materials, and then in multiplying these for further plantings, observation, and experimentation. It was not until after year 3, when the results were presented at the

global project conference that observations based on planting of an array of varieties in local farmers' fields were available and more effective on-farm demonstration activity became visible and local farmers appeared to better understand the objectives of the project.

42. Much of the problem arises doubtless from the nature of the plant itself. Bananas and plantains are not produced nor reproduced as quickly and easily as is corn or beans. On the other hand (see below) the difficulties may to some degree show a lapse in sufficiently flexible planning. The TE does not recommend at this point that bananas and plantains be dropped as a target crop in any future phase, since information of value will certainly be generated by this part of the project. The particular siting of one of the banana focal sites of the project in the highly commercialized area visited by the evaluator, may also have been unpropitious, as it made it more difficult to help farmers organize themselves adequately to promote the use of diversity in bananas for reducing losses due to pests and diseases. Reportedly, other sites in the banana/plantain zones, especially those sites where plantains predominate, have been more successful especially in farmer organization activities, and are reporting good results. The evaluator did not have the opportunity to visit these other areas.
43. It should also be noted that during the work at the La Maná site a very valuable, unplanned surprise occurred that can be credited to the astuteness of the Pichilingue (and La Maná) team. The scientists and technicians at the Pichilingue Station discovered and "rescued" a long-neglected and highly threatened living collection of *Musa* varieties in the region. The collection had been made by an earlier project and had subsequently, apparently, been forgotten. This invaluable collection has now been largely saved and some of the varieties are being used to enrich project plantings.
44. The evaluator did not travel to Morocco, but reports and interviews also indicate that there were considerable lags between plans for completing basic experimental work and the realization of these activities. In this case, the problem appears to largely stem from unexpectedly severe rainstorms, with experiments being completely lost to floodwaters and having to be replicated. This unexpected event resulted in delays that subsequently did not allow for timely comparisons between sites. The project was carefully planned to make inter-site and international comparisons feasible, and these can be especially exciting and instructive. Some project participants suggested that the time was too short and the scheduling too tight to accommodate variable field conditions but yet it is important to understand how varieties react to pests and diseases under variable climatic conditions. The inter-site and inter-country learning that is an important feature of this project is made more difficult when any of the sites is delayed in its work. If there are lessons to be learned from this setback, it is that considerable flexibility must be built into the schedules of such complex projects.

Overall Likelihood of Impact Achievement.

45. Relying largely on the data in Table 1, it appears that the probability of this project achieving both its ambitious set of Outcomes and eventually having significant, measurable Impacts is high if the project is able to continue into a Phase 2. The attached Figure 3 that maps the project's "Theory of Change" suggests that the project has not strayed from its intended impact pathways and appears on course for eventually realizing significant impacts. That its progress along these pathways has been limited reflects the degree of ambition of its intended outcomes and the complex nature of the task. The

satisfactory progress toward the project's ultimate goals is summarized as well in Figure 4, the ROtI assessment.

Relevance

A. Relevance to the GEF.

46. The project was developed within the framework of Operational Programme 13: Conservation and Sustainable Use of Biological Diversity Important to Agriculture. It was also planned to be consistent with Strategic Priorities Two and Four in Biodiversity for the GEF, that is "mainstreaming biodiversity in production landscapes and sectors", and "promoting the generation, dissemination, and uptake of good practices for addressing current and emerging biodiversity issues".
47. At this point it is not possible to assess in a clear and factual way how relevant the project outcomes actually may be to achievement of these GEF goals and priorities, because those outcomes are yet to be realized. It is, however, clear that the project has stayed on-track toward contributing to these objectives and realizing them if the next phase is funded. The entire project is generating important experiences and information that make biodiversity-friendly production systems possible through its experimental and demonstration work on increasing agricultural biodiversity in fields and reducing pesticide use. The project's multiple forms of training, ranging from the university to the farmer-in-the-field level are even at this stage very substantial and it is another substantial and verifiable contribution to these GEF program priorities. The project reported that in China, 10 MSc students and 3 PhD took part in project activities; in Ecuador, 4 MSc students and one PhD; in Morocco, 5 MSc students and 1 PhD; and in Uganda, 4 MSc students.

B. Relevance to the CBD.

48. The project also is highly relevant to the work of the Convention on Biological Diversity, especially to its Programme of Work on Agricultural Biodiversity. That programme, as outlined by the CBD, is based on four mutually reinforcing elements:

Assessments: to provide an overview of the status and trends of the world's agricultural biodiversity, their underlying causes, and knowledge of management practices.

Adaptive Management: to identify adaptive management practices, technologies and policies that promote the positive effects and mitigate the negative impacts of agriculture on biodiversity, and enhance productivity and the capacity to sustain livelihoods, by expanding knowledge, understanding and awareness of the multiple goods and services provided by the different levels and functions of agricultural biodiversity.

Capacity Building: to strengthen the capacities of farmers, indigenous and local communities, and their organizations and other stakeholders, to manage agricultural biodiversity sustainably so as to increase their benefits, and to promote awareness and responsible action.

Mainstreaming: to support the development of national plans and strategies for the conservation and sustainable use of agricultural biodiversity and to promote their mainstreaming and integration in sectoral and cross-sectoral plans and programmes. Conference of the Parties has recognized "the special nature of agricultural

biodiversity, its distinctive features, and problems needing distinctive solutions" (COP decision V/5, appendix). Indeed, several features set agricultural biodiversity apart other components of biodiversity. (Text taken from CBD website)

49. The project is clearly designed to be relevant to each one of these elements, and it is evident that in Phase 1 it has remained relevant to each of these goals. (1) The project has completed assessments of genetic diversity of each one of the eight target crops in the four participating countries, as well as of trends in the use, and knowledge of management practices, particularly those relevant to pest and disease problems. (2) The project has been working on identifying, understanding, and improving management practices that limit crop losses to pests and diseases, and enhance food security and livelihoods. This has been done through observation at all project sites, through household surveys that have been carried out at all project sites, and through experiments carried out both on-farm and in the laboratory. (3) The project has contributed substantially to capacity building through training farmers who include many indigenous groups, their organizations, and other stakeholders through direct training and demonstration activities, also though events such as seed fairs to increase biodiversity in agricultural fields and to manage that diversity sustainably. (4) Finally, in all countries, the project has substantially helped to mainstream the use of agricultural biodiversity for control of pests and diseases through inclusion of local policy-makers in many project events. For instance, the 'diversity fair' and community genebank inauguration held in Kabwohe site in Uganda that the evaluator observed an MP and several members of district and national government as speakers, and included national-level agriculture development and conservation leaders as participants. The inclusion in the National Steering Committees of each of the target countries, of representatives of their respective Ministries of Agriculture and the Environment (or a representative of the GEF Focal point), the National Executing Agency, as well as representatives from local institutions such as relevant NGOs, farmers organizations and/or farmers, representatives of the national Site Coordination Committee, the national Project Director, and the Project Manager also promotes the effective mainstreaming of agrobiodiversity issues. At the national level, the project teams all attest to having established and maintained close ties with their national research and educational institutions, assuring that the some understanding of the potential of agricultural biodiversity and local knowledge knowledge of its use will be mainstreamed into these institutions' training and research activities.
50. **Relevance to Article 8(j) of the CBD.** The project's particular relevance to Article 8(j) should also be noted. This article binds each party to the Convention to "as far as possible and as appropriate: Subject to national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge innovations and practices." (Text taken from CBD website)
51. The project has focused on identifying, testing, disseminating, and promoting locally-developed varieties or landraces of important food crops. These genetically diverse varieties are in large measure the products of the knowledge and practice of local and indigenous communities. The project also has acted in a variety of ways to record a, understand, and promote local knowledge of management and its use to benefit local farmers and their communities. This focus is entirely consistent with Article 8j and its programme of work. Among the specific products of the project that show this direct

relevance to the work programme of Article 8j, is the publication of guides to and descriptions of various crop varieties by the project on the national level. The planting of collections of locally-developed crop varieties in farmers' fields by the project as a highly accessible teaching, experimentation, and demonstration tool, also may be cited as direct evidence of the relevance of the project to Article 8j. These plantings "promote [the landraces] wider application with the approval and involvement of the holders" of the varieties and knowledge of them. The project has also developed guides to benefit sharing and presented them in accessible forms for discussions by local communities and farmers, fulfilling yet another of the instructions of Article 8j.

Efficiency

52. Whether the "phasing" of what was to be a five-year continuous project has had a significant impact on the efficiency of this project is difficult to determine, although the potential for negative effects is obvious. The global management team has attempted to minimize any possible disruption by seeking and securing funding from other sources that would tide all the activities over for a while after Phase 1 funding ceases. The possibility of there not being a funded second phase, however, threatens. As the data in Table 1, the ROtI analysis and other observations demonstrate, the project has accomplished a good deal, but none of the Components of the project have been completed and none of the outcomes have yet been achieved. Nevertheless, with very few exceptions, all of the activities are on-track. Allowing any long-term disruption at this point would result in a great loss of efficiency and cost effectiveness, in addition to the possibility of loss of long-term experiments, collections, and training efforts.
53. Apart from this looming threat, the project appears to have been managed in a cost-effective manner. The evaluator conducted interviews with at least two members of the International Steering Committee from each of the participating countries on financial management issues. There were no issues raised about inefficiencies in the management of the financial resources of the project. While one member of the ISC suggested that they had been some slight delays in the delivering of funds, he also averred that these delays had been minor and had in all probability resulted from some national groups' delaying their own reports. All persons interviewed stated that project funds were invariably delivered in the quantities that were promised and were needed. All persons interviewed claimed that the administration of funds was effected in a transparent manner. When asked to compare the financial administration of this project to other projects in which they had participated, several national level team members praised the project's administration of this project for exceptional efficiency and transparency. An interview was also conducted with a financial officer at Bioversity Headquarters who had first-hand knowledge of the financial administration of the project. All of her comments concerning the way the project was managed financially, including the reporting that was done on the project were positive. The evaluator found that the project was handled efficiently and well.
54. Table 2 summarizes the planned contribution of cash and in-kind co-financing to the project. The evaluation did not find any significant change from these totals, nor any complaints from any of the persons interviewed with their delivery. The project also leveraged funds from other sources to carry out some important activities. The Project Manager reported, for instance, that much of the work helping participant country teams identify national incentives and disincentives to the use of biodiversity in agriculture and

policy on benefit-sharing was done with funds leveraged from other sources and organizations.

Table 2: Summary of Co-Funding

Co-funding				Requested from GEF	
Governments		International			
In-kind	Cash	In-kind	Cash		
3,374,922	1,225,082	1,926,624	1,945,000	6,868,534	

- 55. There are additional in-kind contributions that the evaluator observed during site visits that may not be captured in the accounting. These come, for example, in the form of data generated by students at universities in participating countries, who are not compensated by the project itself. A number of students both beginning and advanced who are engaged in work for their courses, theses, etc. on aspects of agricultural biodiversity, inspired by project scientists (many of whom teach), and presumably by the outreach products generated by the project.
- 56. The Global Project Director and colleagues have pursued and continue to actively pursue additional funding for the project, particularly to fill any gaps that will occur as Phase 1 ends. Proposals for funds have been submitted to a variety of potential funders, including ESPA (UK) and IFAD, as well as to the GEF for writing the Phase 2 proposal, and to other sources.
- 57. Building upon existing knowledge. The project is exemplary in the way it has built upon a great deal of broad and profound understanding of existing scientific knowledge and cutting edge technical information in areas such as plant population genetics, plant pathology, entomology, ecology, economics, participatory approaches, law and policy. Both international- and national-level experts have served on project technical and thematic advisory committees. Several international institutions were also recruited to participate as technical advisors, including CSIRO, Washington State University, Oregon State University, Cornell University, the University of Kassel, IRRI, IFPRI, UPWARD, and FAO.
- 58. While there have been some highly experienced and competent social scientists as well as natural scientists involved with the project, the expertise in some highly relevant and crucial sub-disciplines was somewhat lacking. The participation of anthropologists experienced in work on smallholder agriculture or trained as ethno-scientists / ethno-botanists would have helped generate better data, made the results of some analyses far more accessible and more readily acceptable to the target populations, and would have helped make research results on local systems more useful, scientifically acceptable, and more readily generalized to other regions and situations. The participation of such experienced scientists as advisors would have helped improve, for instance the methods that were employed for collecting local names and describing locally recognized and important traits of local cultivars, and other activities central to the project. Much work that has been done in these areas of research that was not well utilized and thus an opportunity was missed. This rare flaw in a project with such cutting-edge interdisciplinary science could be substantially remedied by including such expertise in the next phase and by increasing and improving the training of some field personnel. (See Recommendations.)

Theory of Change Analysis (TOC)

59. The figure on the following page summarises the causal logic specified in the project document. It provides a framework for the evaluation of the achievement of outcomes and objectives and informs the assessment of the sustainability of the project t (next section). The TOC is of great utility for the Review of Outcomes to Impact (ROtI) assessment that is presented on page 46

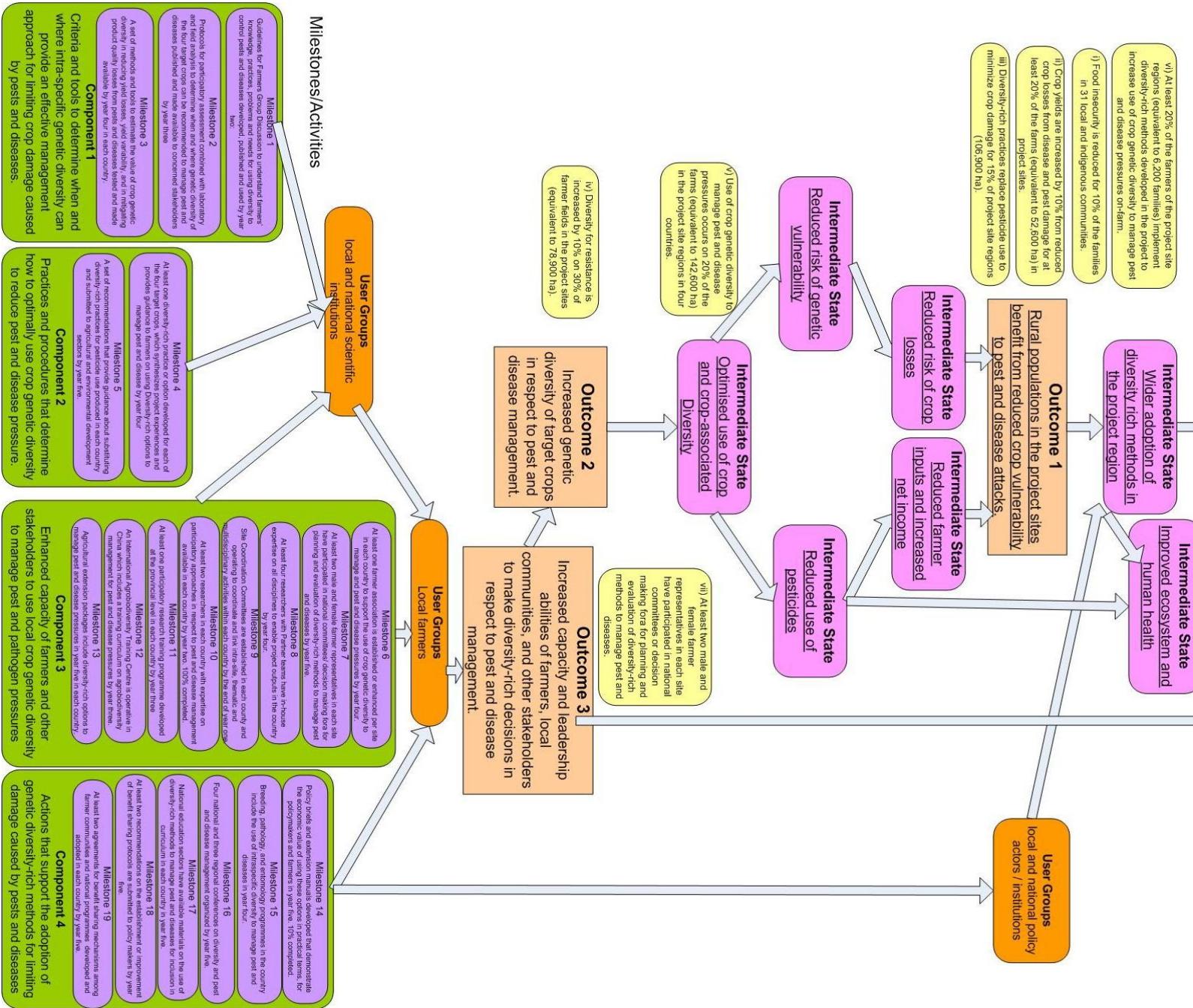
CONSERVATION AND USE OF CROP GENETIC DIVERSITY TO CONTROL PESTS AND DISEASES IN SUPPORT OF SUSTAINABLE AGRICULTURE

THEORY OF CHANGE:

Development Objective
to enhance conservation and use of crop genetic diversity by farmers, farmer communities, and local and national institutions to minimize pest and disease damage on-farm

to conserve crop genetic diversity in ways that increase food security and improve ecosystem health

Immediate Objective
to enhance conservation and use of crop genetic diversity by farmers, farmer communities, and local and national institutions to minimize pest and disease damage on-farm



Sustainability.

60. Despite the recommendation for continuation into a second phase, lest the gains already made by the project be lost, the probability of continued long-term project-derived outcomes and impacts after the GEF project funding ends appear quite good, if the project is allowed to continue through to its conclusion as originally planned. There are a number of key conditions or factors that were already observed and that can be expected to affect the persistence into the future of the benefits of this project. As indicated in the Terms of Reference, four aspects of sustainability will be addressed: financial, socio-political, institutional frameworks, and environmental.
61. Financial resources. The greatest risk to the sustainability of the project's advances is obviously financial, i.e., uncertainty about funding for a Phase 2 that is crucial if the project is to achieve its planned outcomes and have the impacts that the completed project promises. Despite substantial strides made in Phase 1, the project and much of its work is incomplete (as per its plan) and needs several more years of fully funded, uninterrupted work if it is to realize its potential. While the likelihood that sufficient bridging funds will be available to continue activities at all the sites because of the additional fundraising that has been done by the project's leadership, these funds will clearly not suffice to take the project to its end.
62. Given a successful conclusion to the project, i.e., a completed Phase 2, the expected outcomes and eventual impact of the project are not necessarily dependent on continued major financial support. This conclusion is based on the fact that the materials used in the project and the technologies for employing them are readily available at very low cost to the intended beneficiaries of the project, i.e., the small-scale farmers and their communities. The project is based, not on imported or expensive high-tech materials and processes, but on locally-developed genetic materials and local knowledge. The achievements of the project and the mechanisms for making the necessary impacts lie rather in the results of field and laboratory trials, the education and training at all levels that is already underway, as well as on the better-informed decision-making, changes in agricultural and educational policy, and in the organization of farmers, including women farmers that are also underway, but not yet all in place. These are all highly important activities that will 'move' the project along the intended causal pathways, therefore a strong emphasis should be placed on these in the design of Phase II.
63. Socio-political. The strongest indication that the probability of the project's long-term, outcomes and impacts persisting well beyond the date that the GEF project funding ends is high, is the observed level of stakeholder, including governmental, ownership of the project in many, although not all, sites. Perhaps the most compelling and convincing sign of local ownership, even enthusiasm, for the project was noted by the evaluator during the 'diversity fair' and community genebank inauguration in the Ugandan village of Kabwohe. As noted above, the event was attended by two members of Parliament, including one who gave a rousing campaign speech praising the project and promising to build many more community genebanks in more communities (if he is reelected). This adoption of a project activity into the political agenda of a local politician certainly illustrates the success of the project in securing country and local ownership.
64. Interviews with ISC members from the four participant countries as well as the interviews conducted with their professional colleagues from other government ministries, NGOs and universities in Uganda and Ecuador, all indicated strong support for the project, especially

enthusiasm for continuing with agrobiodiversity work into the future. One reason for this success appears to be that the project constructed its National Steering Committees and Technical Teams with great care to include influential individuals and institutions. These persons apparently are important nodes in networks. Their endorsement can guarantee that the project will receive attention and that it is perceived as truly owned nationally and locally.

65. While there is broad acceptance and buy-in for the project at many sites and on many levels, there are as well some instances of misinterpretation by local farmers as well as leaders of crucial aspects of the project. One such issue arose several times during interviews in Uganda. On-farm trials of local varieties are meant to acquaint local farmers with these diversity resources, while also testing them under local conditions. Unfortunately the manner of planting them out: separated and in neat rows to facilitate data gathering on various growth, yield, and pest resistance characteristics was often interpreted by farmers and even some extensionists as a lesson on the necessity of planting varieties separately and in neat rows, "so that diseases don't spread". Some difficulties in communication are apt to occur in any project, and this is just one inadvertent misstep. The project is now correcting this and similar unintended failures in communication.
66. Institutional framework. The "institutionalization" of many of the ideas, activities, and methods of the project within the participating countries appears to have already begun, after a period of only three years. Evidence for this comes from interviews with a broad range of individuals, ranging from several members of the International Steering Committee, to functionaries of Ministries in Uganda and Ecuador not directly involved in the project, and on to participating farmers and their institutions. Among specific examples of such institutionalization of project activities is the formation of interdisciplinary Ms. and Ph.D. programs at the Institut Agronomique et Vétérinaire (IAV) Hassan II, a participating university in Morocco. The creation of these programs were spurred directly by the project and can be expected to lead to greatly increased interdisciplinary research and extension work on agrobiodiversity and similar issues. Other participants and groups interviewed also cited the investment in capacity-building that the project is making, as a most important pathway toward a broad and lasting impact on opening up the way agricultural development and agricultural research are understood and carried out in their respective countries.
67. Participants from China also affirmed that the prospect for sustainability was high in their country, because much what the project does and promotes has been institutionalized within their research institute and increasingly in regional and national policies. They cited that fact that since China is now concerned greatly with "green development" the approaches and direction of this project are being readily accepted and institutionalized. The project, they stated, has come at an opportune time and is now "well-positioned to have policy impact".
68. Environmental. As mentioned above, the project has experienced damage and considerable delays due to a flood that destroyed some ongoing experiments in Morocco. There are of course some environmental risks to project activities in many areas because of the dispersion of experiments in farmers' fields. However, the multi-sited nature of the project, the fact that trials and demonstrations are being carried out in a great many farmers' fields, has also reduced the risk of any catastrophic damage to the project and presumably to any future flow of project environmental benefits. All of these and many more environmental risks may apply in other contexts where the project may be replicated, but again the intention of the project is that that many small-scale farmers

globally adopt or increase the use of agrobiodiversity to limit damage from pests and diseases, not to concentrate these approaches in any one place or region.

69. Again, the greatest threat to the sustainability of the benefits of the project lies in the uncertainty that the Second Phase of the project will not be funded or will be inordinately delayed, that a large number of activities will not be completed and that trials, collections, training, and numerous other potential outputs and outcomes that now seem well underway will not materialize.

Catalytic Role and Replication.

70. Despite its short duration, the project appears to have incentivized a good deal of change and action by planning and managing these first three years well. First, an impact was achieved by selecting suitable partners and participants in the various participating countries. Many of the scientists were, prior to the project, not specifically working on local landrace and knowledge issues, nor were they used to placing their collections, trials, and experiments in farmers' fields. They were, however, open to change and reevaluation of conventional approaches and modes of work. The local varieties and the local knowledge upon which much of the project is based are largely available and known to the target populations, the challenge is one of linking the best science and extension to local knowledge and practice, that is, to promote or enabling the scientific testing and enhancement of these farmer- and community-developed products and technologies. Many of the disincentives to using biodiversity methods to control pests and diseases stem from the prejudices and narrow training of scientists themselves. The project helped scientists adapt their existing expertise through training on interdisciplinary research approached, including training in participatory techniques conducted in all four countries, through the development and translation and use of multiple research tools, including diagnostic protocols, questionnaires, and others, by including appropriate and multiple opportunities for researchers to learn from each other, including at annual ISC meetings and field trips, and other workshops. The international aspect of the project, i.e., the bringing together of researchers from several countries and somewhat different research environments and traditions obviously helped to produce this "catalytic" effect.
71. Secondly, the planners of this project were obviously well aware of the necessity of creating an "enabling environment" for this innovative project by addressing both agricultural development and research policies on the national level. A crucial project achievement was a review of the legal and policy issues affecting breeding systems and what impacts these have on the decisions made by the national breeding systems in all four countries. These reviews were carried out early in the project and apparently have informed subsequent approaches.
72. As mentioned above, the project has also helped create an enabling environment by including influential persons on its National Steering Committees. As examples discussed above show, (see "Sustainability"), the project has successfully included policy-makers in its committees to guarantee that its approaches are better-understood and have influence on relevant policy. The evaluator observed, particularly during the Uganda visit, that this arrangement has led to considerable country and regional "ownership" of the project in both agricultural and biodiversity conservation sectors.
73. These individuals have assumed roles as "Project Champions". (A specific example of such buy-in, noted above, occurred at the inauguration of a community gene bank attended by the evaluator when a member of Parliament, promised to build many more

community gene banks in more communities as part of his reelection campaign speech.. Although little has been realized to date of specific policy changes due largely to the extremely short time, these "champions" can be expected to eventually correct the lack of recognition of the communities that maintain crop germplasm in situ, to change agricultural policies that discriminate against the maintainers of local cultivars, and benefit sharing protocols that often do not adequately acknowledge the contribution and rights of local communities. Other analyses that the Evaluation Terms of Reference request, i.e., on "Institutional Change", "Policy Change", and "Catalytic Financing" cannot be assessed at this stage since the project still has much to do to achieve the Outcomes and eventual Impacts that are promised. It can be stated with some confidence, however, that important strides have been made in: planning, capacity building, formation of committees and recruitment of personnel, as well as in carrying out of appropriate policy diagnostics, and production of high-quality research tools in Phase 1. The advances together have put the project in a very good position to catalyze considerable change in how local knowledge and practice is regarded, and in how effective tools are developed to help farmers cope with pest and disease problems under rapidly changing conditions.

Replication and Scaling-up.

74. The project is designed for successful replication and scaling-up. The project is being carried out in four countries (Uganda, China, Ecuador, and Morocco), each in a different region of the world. The project works with six target crops: rice (*Oryza sativa*), maize (*Zea mays*), barley (*Hordeum vulgare*), common bean (*Phaseolus vulgaris*), faba bean (*Vicia faba*), banana and plantain (*Musa spp.*). Each of these crops is a major nutritional staple and in many cases a source of cash for large, and often disadvantaged, populations in many areas of the developing world. These six crops are important factors in national food security in many countries and thus of interest to NARS and to policymakers. Perhaps even more important, the approaches, techniques, as well as the results of the project are applicable to many other crops, since those chosen represent different breeding systems (cross-pollinated, partially outcrossing, self-pollinated, clonal), characteristic of other crops important in other regions and countries. The project was also designed so that each crop is present and important in two of the participating countries, so that a significant breadth in research results and experience has already been built into the project. Each country participating in Phase 1 also has several sites that represent significant differences in important environmental, social, and cultural conditions. Included are highly humid and quite arid areas, sites at sea-level and at considerable altitude, zones with highly commercialized and market-oriented agricultural economies, and others that are more isolated from markets and more subsistence production oriented.
75. The research and extension situations are quite different in the various countries that participated in the project, as are the policy environments in which they operate. Capacity and experience among participating farmers and communities are likewise very different. This multi-faceted and yet structured diversity within the project makes the prospect of replication and scaling up far more accessible than in most other projects. This characteristic also implies that in the design of the Phase II of this project, careful consideration of a tailored approach for each country would be indicated. The project even offered materials such as protocols, handbooks, and other training and research tools in several world languages: English, French, Spanish, and Chinese that are accessible and could be more easily modified to use in other areas of the developing world. Although no

replication effects can be cited at this stage of the project, all of the above constitute an exceptionally strong and comprehensive strategy to promote replication effects.

76. The individual project planners and implementers, especially on the global level, as well as the lead global institution, Bioversity International, has long and broad experience in all regions and continents carrying out research and demonstration activities. This considerable and relevant experience is evident in both the planning and implementation of Phase 1.

Stakeholder Participation/ Public Awareness.

77. The project, through its thematic focus and objectives, its structure, and its implementation has built in a great deal of participation of a wide array of stakeholders. Stakeholder participation commenced in the planning stage and has continued.
78. Stakeholders in the project include: smallholder farmers, farmer organizations, community-based organizations, NGOs, agricultural extension workers, natural and social science researchers from universities and agricultural research institutes, and government ministries of agriculture and the environment. The project originally identified stakeholders through a series of planning meetings and consultations and included both multiple institutions in the planning, and the perspectives and tools of multiple disciplines. Such consultations included actors and institutions at national, regional, and local site levels. The exact composition and configuration of stakeholder groups varied from country to country, reflecting each country's differing institutions for research, education and development. Apart from governmental agencies, universities and research institutes, each country's planning processes included some farmer organizations, and conservation and development NGOs, especially those focused on crop diversity, sustainable agricultural development, and farmers' education through participatory approaches. "Key farmers" were also identified at each site. These were meant to be farmers who had exceptional expertise or interest in agricultural biodiversity, and who could motivate their communities.
79. Project reports indicate that during national planning meetings in each country, stakeholders, including the key farmers from each selected site, as well as scientists, extension and development workers, educators, NGOs, and government policy makers were involved in and contributed to the design and development of procedures and criteria for: site selection, forms of public participation, roles and responsibilities of each of the key stakeholders and stakeholder groups, methods and needs for capacity building, related projects and baseline assessment, as well as the overall project implementation and coordination plan. Stakeholders during these national planning meetings also contributed to the final versions of the global and their own national logical frameworks and work plans, as well as to the design of systems for monitoring and evaluation at the national level, and identification of co-funding for the project.
80. In order to make project management and implementation effective at all levels, planning for the country-specific project management and management structures and on how the national structures linked to the global level and to each other had been started in each participating country during the project's PDF-B phase and took into account differing national policies and organizational structures. The national representatives also participated in the design and development of common and joint management structures at the global level including the Project Management Unit. The partners also were consulted on and agreed to the formation of the International Steering Group as well as the

formation of the common national project management structures, including a National Steering Committee, a National Project Director and National Project Manager and Technical or Thematic Advisors in each country, as well as a Site Team at each site. Interviews conducted during field visits as well as those done during the ISC meeting in Uganda indicated that there was general satisfaction with the way the national partners and other stakeholders had been consulted and how they had participated in project planning. The evaluator could confirm that the initial institutional arrangement developed during the first year appeared work satisfactorily. There were no significant complaints registered about structural issues nor about any inefficiencies in how communication occurred both between levels and within each level.

81. In the implementation stage, the project again placed a good deal of emphasis on stakeholder participation. The project focused resources, including the use of expert consultants, on training in the use of participatory approaches for researchers and field staff at the national level. Each national team had specific sessions on how to conduct group discussions and household surveys in ways that would be genuinely participatory and involved local stakeholders, with some emphasis on outreach to women. Consulting project reports, it appears that there have been continuing efforts to strengthen site teams in this area through periodic training, and in many cases these have proved to be important in ensuring higher levels of participation of local communities.
82. Field visits to Uganda and Ecuador and interviews with a broad spectrum of stakeholders indicated that most stakeholders agreed that genuine and largely successful attempts had been made to consult, inform, and involve both local level institutions and officials and farmers at project sites. Most stakeholders when questioned seemed to have adequate understanding of the project, its objectives and activities and approved of project activities. While the overall picture was quite positive, there were obviously some lapses and some complaints. Several examples might be cited. As was noted above (see "Socio-political" sustainability), some on-farm field trials sent confused messages to farmers. In Ecuador, the lowland banana sites, as noted above, were considerably delayed in many activities. In a group interview, it was obvious that while a small core group of farmers understood the project well, and a larger number of farmers had only the vaguest idea of what the project was doing, and much of it was erroneous. At the Rubaya site in Uganda, again a core group of farmers, especially those whose fields were being used for field trials, were very familiar with all parts of the project, while others confused it with previous development initiatives and had only a vague idea of the core objectives of the project. These failures to adequately communicate with all stakeholders, gleaned through group interviews, were however, the exception, and the project generally scored quite high on stakeholder participation and local awareness. These lapses in communication are mentioned here largely to point out a few issues that need to be considered carefully in up-scaling in Phase II.
83. As was mentioned above (see Sustainability), the evaluator was able to observe several highly successful activities during field visits, including 'diversity fairs' in Uganda and Ecuador that attested to a high degree of community involvement -- even enthusiasm -- for the project.
84. It should also be mentioned that the project set up and maintained a website (<http://agrobiodiversityplatform.org/cropbiodiversity>) that featured (and still features) news from the project and about project participants, with special pages for each participating country. The website also contains links to relevant articles and other non-project webpages. The project website functions well, is attractive, and is potentially very useful to project personnel and other stakeholders.

Country Ownership/ Drivenness.

85. The importance of agricultural biodiversity conservation for sustainable food security has long been recognised by the Governments of China, Ecuador, Morocco and Uganda. Each of the four countries has developed their respective National Biodiversity Strategy and Action Plans (NBSAP), which include crop genetic diversity. To assess the level of country ownership the evaluator conducted interviews with members of the National Steering Committees of each of the participating countries as well as government functionaries who were not participants in the project in two of the four countries. Every one of the persons interviewed suggested that the project was of considerable and growing interest to their respective governments. Several specific examples of country drivenness have been cited above (see "Sustainability"). One such example, for instance was the affirmation by participants from China, that this project is particularly interesting and timely since China is now specifically concerned with "green development". The approaches and direction of this project have therefore been readily accepted and institutionalized. In Uganda, the specialist in biodiversity of the National Environment Management Authority claimed that the project "fits well into the priorities for biodiversity conservation as well as into the sustainable development agenda" (evaluator's notes). He also specifically endorsed the way the project has been working with local and district level governments. Many other examples of the project's exceptional level of country ownership were encountered and could be cited.
86. While it appeared that in each country there was verifiable evidence of a commitment to the generation and use of research related to use of crop genetic diversity to minimize pest and disease damage on-farm, the actual employment of project outputs and outcomes and any possible impacts could not be assessed because of the project's work is still far from completed.

Achievement of Outputs and Activities

87. As has been stated above, it is too early to expect and certainly to assess the achievement of most of the promised outcomes. Table 1 above assesses the level of completion of many of the important activities of the project. It is also too early to answer the question: "To what extent [do] the project outputs produced have the weight of scientific authority/ credibility, necessary to influence policy and decision-makers, to take actions, particularly at the national level, that support the adoption of genetic diversity-rich methods for limiting damage caused by pests and diseases." With some relatively minor exceptions, especially in the area of social science / ethno science methodologies and research approaches noted above, the quality of the science in this project is very high.
88. The project, as noted above, has counted with the advice of a distinguished array of scientists, particularly in the natural sciences. This could be discerned in the careful design of the project, especially the intricate pairing of countries and crops to ensure comparability. It was also evident in the selection of target crops with different characteristics and of sites that allowed for comparisons and valid generalizations to be made. The project advisors, as well as the project's leaders on both the global and national levels are in many cases highly respected and experienced scientists with significant records of publishing in international peer-reviewed journals. It is apparently only the brief duration thus far of the project that has kept project scientists from submitting project results for peer review.

89. It is likewise too early in the project to "assess to what extent the project outputs enhanced capacity of farmers and other stakeholders to use local crop genetic diversity to manage pest and pathogen pressures". Again, as has been mentioned, the project gives every indication that it is on track to make these important advances.

Preparation and Readiness

90. The evident and documented success that the project has had in getting almost all of its key activities project underway -- already completing many of them, and putting a complex but very largely effective management structure and processes up and running testifies to the fact that the project's objectives and components were indeed well thought through and communicated clearly, and that they proved to be both practicable and feasible within the planned project timeframe. As Table 1 (above) indicates, there were several activities that were not completed in the period planned; these however, represent a minor part of the activities scheduled. There were more activities that were begun or completed more quickly than was called for in the schedule. The only areas where there have been significant lags were, as described above, in some of the work on bananas at one of the lowland Ecuador sites, and in the area of some experimental work in Morocco. As is discussed above, neither of these situations demonstrates any widespread or consistent flaws in project planning or implementation. As also indicated above, both failures to complete work on time, were caused at least in part, by unexpected events that were beyond the project's control.
91. The lead executing institution, Bioversity International, and the global management team were highly qualified to design and carry out this project and both project plans and implementation results demonstrate convincingly that the national partners were chosen carefully, their respective strengths and weaknesses weighed realistically, and the entire project team including the various technical and team advisors selected to form an effective if perhaps not wholly ideal group.
92. The project did a good job of reviewing other pertinent global, regional, and relevant national efforts and linking some of most important to the project, in order to promote building upon the lessons learned and results achieved. During the PDF B phase of the project, a list of 96 related and complementary initiatives undertaken and/or are under operation within the four participating countries was compiled by each of the national programs. Actions were taken to forge relevant links with the most relevant of these. In the two countries visited, some of these linkages were evident to the evaluator. Perhaps the best evidence of this came from interviews with relevant administrators and scientists working in other government organizations and ministries and in NGOs. The question was specifically posed to all appropriate interviewees asking about communication, collaboration, overlaps between projects, etc. There was almost universal satisfaction with the project's reaching out to and communication with other projects, programs and organizations. Among the few issues that were raised, e.g., in Ecuador, concerned lack of communication because personnel of some international organizations, who had been charged with the job of liaison to the project, were moved and changed too frequently. This and other similar faults were not attributable to any failure of the project, however, but rather to personnel issues in other organizations. As noted above, the project has apparently been very successful in including in its steering and advisory committees on all levels, individuals with local, national, and international standing and effective professional networks.

93. During the PDF-B phase, the project's partners also reviewed and compiled a list of 23 organizations and databases that support the management of pest and disease issues in the context of sustainable agriculture. This was apparently done to help improve communication and to ensure that the project was building upon existing experiences in an efficient way, and minimizing the risk of overlap and competition. Again, the inclusion of a broad and distinguished roster of technical experts as well as the broad knowledge and high standing of the international and national steering committees ensured that particularly important and pertinent organizations and programs were linked to the project and informed project activities.

Implementation Approach and Adaptive Management

94. The project's management framework and structure is sketched broadly above (see section on Project Design and Management Structure). This global, comparative project has a complex, but essentially effective structure. Figure 2 illustrates the management structure of the project at global level. Each of the participating countries has a somewhat different management structure at the national level although each also departs only in details from the others, making scheduling activities that rely on comparisons among sites and countries possible. The somewhat varying structures found in the four participating countries are all sketched out in the Project Document's Annex E. The evaluator did not find any significant departures from the planned structure that had been designed employing inclusive and painstaking processes during the project's PDF-B phase. The planned and actual differences between the several countries' management structures largely reflected differences in national institutions and other structures. There were however significant differences in the complexity of some national project structures. Interviews with project personnel at both national and global levels suggest that arrangements with only one clear coordinating institution (see Recommendations section) may have been the more effective and efficient choice. Overall there appears to have been little departure from the original plans (as outlined in the project document) for implementation. This congruence with the plans doubtless reflected the careful and participative planning that was done during the PDF-B phase as well as the previous familiarity of the project's planners with the realities in each country. The effective operation of the project thus far also bears testimony to the adequacy of planning, preparation, and implementation.
95. The greatest change to which the project has had to adapt is the phasing of what was to have been a 5-year, unphased project. Thus far this disruption to the original project plans has been accommodated. However, the plan that is in effect essentially demands that the project be implemented over at least 5 years if its ambitious and important outcomes are to be achieved and if it is to have the impacts that were intended. The project's directors have shown considerable adaptive capacity in seeking additional funding for continued work after the GEF Phase 1 resources are exhausted. However, it will probably not be possible to maintain many important activities and realize all potential impacts if the gap in financing lasts for more than the several months' time that has been foreseen and can be covered by these bridging funds.
96. The roles of the various committees on the global, national and local (site) levels are outlined in the project document. Interviews with members of several committees at both global and national levels suggest that they are operating as planned. The meeting of the ISC in Uganda also provided a chance to interview one of the more active technical advisors about involvement of the group of technical and thematic experts that helps guide

the project; and this source confirmed that the project indeed relies upon and uses such advice in appropriate and beneficial ways.

97. Assessment of the extent to which the project responded to its mid-term review, is not quite relevant, because the mid-term review itself was done after only about 18 months of project operation. The project review was largely done by the Global Project Manager with some help from two of the project's technical advisors. Few flaws were found and few actionable observations were made. The project was rated "Satisfactory" overall; calls were made to better align the M&E plan with the reality of a phased project and the 3-year period of Phase 1. As was noted above, the project appears to have adapted as well as might be expected to this reality, although again, a Phase 2 is undoubtedly necessary if the promise of this project is to be realized and its outcomes and impacts achieved.

Monitoring and Evaluation.

98. The plan for monitoring and evaluation as originally mapped out in the Project Document (see especially Annex P) is elaborate, appropriate, and comprehensive. It details the M&E roles of its several constituent parts, including committees, individuals and organizations (including UNEP, the ISC and NSCs, the PMU, etc.) as well as the various oversight activities, reports and schedules that constitute this plan. The PMU was charged with developing a reporting structure for all project partners and ensuring that reporting is timely and complete. It also was responsible for all reports for UNEP, and with carrying out regular site visits with particular attention to sites experiencing difficulties or delays. These reports were then reviewed by the ISC, which then advised the PMU on resolving difficulties and increasing efficiency, and monitoring progress in the capacity-building component. The NSCs reviewed all national reports and offered policy guidance where needed.
99. The project's M&E activities included monitoring of Execution Performance, i.e., tracking both programmatic progress and financial accountability. With support from the PMU, UNEP was charged with carrying out this level of monitoring. The project also monitored Project Outputs and Milestones. This process assessed the technical execution of the project and was based on the indicators and means of verifying them that are documented in the project logframe, and on the implementation timeframe set out in the timeline and the M&E Plan (Annex P).
100. The Global Project Manager was responsible for developing progress and quarterly financial reports, with inputs from national management units. These reports were tracked by both the NSCs and the ISC. Stakeholder participation in the M&E process was also planned as it was deemed essential to ensure their continued ownership in the project activities. A highly innovative feature of the M&E plan was the proposed inclusion of farmers in evaluation teams and their involvement in internal project evaluation and annual reviews of project performance. The evaluator, however, failed to discuss with participants whether this grassroots level of evaluation had actually functioned successfully. Both mid-term and final evaluations were originally planned as fully independent evaluations. As noted above, a mid-term review was done at an early stage, (if the original project timeline is considered), and was a self-assessment of progress. The mid-term review came at an appropriate time given the approved duration of Phase 1.
101. The project plans, as well as their execution, certainly more than met the minimum requirements for 'project design of M&E' and 'the application of the Project M&E plan' as outlined in Annex 4 of the Terms of Reference for this evaluation. The original plans

laid out a sufficiently "SMART" set of indicators and the M&E mechanisms put in place were indeed used effectively. Interviews with members of the ISC representing the four participating countries all agreed that the reporting requirements, including forms used and schedules enforced, were effective in tracking what actually was going on and what needed special attention. They also all agreed that the reporting activities required were not unduly burdensome and had been clearly explained and evaluated. None of the persons interviewed reported any problems with the funding that was available for M&E activities nor did they complain of any other difficulties with the system. Each of the National Steering Committees appeared to include personnel who were sufficiently trained to implement the procedures that made up the M & E plan.

102. If and when a Terminal Evaluation of a second or final phase of this project is done, then the various baselines that were established by the project for monitoring purposes can be more meaningfully re-visited. In its plan the project reported the existence of some important baselines although the data necessary to determine many of them were apparently not available (see Annex P, Table 3) and the work necessary to actually gather these data would have been prohibitively onerous.
103. All interviews that were conducted both with personnel who were part of the project and those from the outside confirmed that reports, both financial and activities reports, were generally completed in a timely fashion. Some exceptions were the delays in reporting attributable to incidents that were impossible to control, e.g., the flood at some Moroccan sites. Some others were just the routine and predictable, temporary non-compliance of very busy project personnel. None indicated that there were flaws in the planning nor in the implementation of the project's detailed and solid M & E plan.
104. Budgeting for the Terminal Evaluation appeared to be largely adequate, although it only allowed for visits to sites in two (Uganda and Ecuador) of the four participating countries. This was not ideal, but the opportunity to attend the ISC meeting and speak to members from the other two countries (China and Morocco) was a reasonable alternative approach.

Financial Planning and Control

105. The evaluator assessed the quality and effectiveness of financial planning and control of financial resources throughout the project's lifetime through a series of interviews. Questions put to a variety of members of the project and to personnel outside the project who dealt with financial matters failed to reveal any lack of competence, lack of due diligence or insufficient transparency.
106. Reviews of the actual financial reports from several years as well as the "near-final" terminal report revealed that there were few major departures from budgeted funds. The only notable instances of underspending were in several categories of work on economic and social issues. These discrepancies again, did not appear to be symptomatic of any general failure in planning or financial and overall project management. Assessment of "the strength and utility of financial controls, including reporting, and planning to allow the project management to make informed decisions regarding the budget and allow for a proper and timely flow of funds for the payment of satisfactory project deliverables" as requested by the evaluation's TOR, basically rests on the lack of any report in the course of numerous interviews that would suggest that there were any financial difficulties or any mismanagement. The relatively smooth functioning of the project despite the hurdles encountered because of the unexpected "phasing" of the project, is perhaps the best

indication of the " strength and utility of financial controls". The evaluation did not include a financial audit.

UNEP Supervision and Backstopping

107. The supervision and backstopping that was done on the part of UNEP appeared to be satisfactory. The UNEP/DGEF Senior Programme Management Officer (SPMO), Bioversity, attached to the project attended the ISC meeting and appeared to be very well aware of what was happening at each level. Interviews with the ISC members from the participating countries likewise reported the general helpfulness of contact with UNEP. The SPMO also prepared and delivered a substantial presentation on probable future changes in the GEF that would be of interest to project participants. The evaluator also found she could rely upon the SPMO to be available for any added information and clarification whether by email or Skype and availed herself of this aid and advice frequently.

Complementarity with UNEP Medium Term Strategy and Programme of Work

108. While this project was designed well before the production of the UNEP Medium Term Strategy (MTS/ Programme of Work (POW) 2010/11, the project responds appropriately to several of the thematic priorities of the MTP. Complementary issues include the follow:

109. Climate change: The UNEP objective here is "to strengthen the ability of countries to integrate climate change responses into national development processes." The project focuses on helping developing country farmers deal with the emergence or invasion of new pests and diseases due to altered climates.

110. Ecosystem management: The UNEP objective is "that countries utilize the ecosystem approach to enhance human well-being." The approach to pest and disease control that the project promotes essentially is an "ecosystem approach", minimizing pesticide use, and enhancing biodiversity.

111. Harmful substances and hazardous waste. Here UNEP seeks "to minimize the impact of harmful substances and hazardous waste on the environment and human beings." As mentioned above, the project has already shown some success in curtailing pesticide use in some of its sites.

112. Resource efficiency – sustainable consumption and production: Finally the best fit with the UNEP Medium Term Strategy and Programme of Work is this project's congruence with the objective to see that "natural resources are produced, processed and consumed in a more environmentally sustainable way." The project attempts to promote just this objective through a wide array of activities, outputs, and outcomes, including promoting policy reform and strengthening institutions to work on agrobiodiversity approaches to pest and disease control.

Project contributions that are in-line with the Bali Strategic Plan (BSP).

113. The project focuses on technologies that promote the conservation of important biodiversity and that minimize the use of pesticides. These are technologies that would be available to a broad range of resource managers, among them some of the world's most

marginalized and disadvantaged. Thus the project appears to be well in-line with the BSP objectives and when the projected outcomes are realized they doubtless will be seen as promoting BSP objectives.

South-South Cooperation

114. The project is an excellent example of South-South cooperation not only because it involves four countries of the "South" in a joint effort, but also because it was carefully structured to promote --virtually require -- substantive exchanges of information, analysis, and experience among participants in the four countries. As mentioned above, the project chose to focus on several important crops, with each country having at least two target crops in common with another country. Thus the participants working on bananas in Ecuador will certainly have multiple opportunities to share information and build lasting ties with their counterparts in Uganda, etc. The project also features a Steering Committee where all participants share their results, difficulties and insights with counterparts from other participating countries, and its website also makes South-South communication easy. There are many other aspects of the project that promote South-South cooperation that could be cited.

RECOMMENDATIONS

The project, after having been approved as a continuous five-year effort, was phased and only three years' of planned activities were funded. **The evaluation recommends:**

1. A Second Phase of the project be swiftly approved by the GEF and fully funded, with preferably another three years of activities scheduled. As we have detailed in this evaluation, the project has generally been more than satisfactory in most aspects, with many well-planned and executed activities and some important outputs. However, time and budgetary constraints have made it impossible to complete many important activities and to achieve anything more than only partial outcomes.

If a Second Phase is not funded, a significant amount of important work will be lost with little possibility of realizing the full potential of many of the trials, experiments, training, outreach, and analysis that have been initiated and implemented over the first three years. The need for continuing into a Second Phase is even more urgent because in the case of a number of species, most notably banana, there has been scant time to even begin most of the activities (see also Lessons Learned #). The resultant loss of field and laboratory trials and possibly of important collections would be quite unconscionable.

2. The Project proposal for the second phase include more trained and experienced social scientists specialized in relevant subdisciplines or ethnobotanists in any next phase. The project is designed to be highly interdisciplinary, integrating the best science from a large number of biological and social science disciplines. The very many highly qualified and experienced biological scientists who make up the global and national teams as well as the Technical Advisory Board are highly experienced scientists, many of them leaders in their fields. While there have been some very experienced and competent social scientists involved with the project, the level of social science expertise in some highly relevant subdisciplines is far lower than in other or in the biological sciences; it should be increased substantially.

There are several areas in which a more experienced social scientist or trained ethnobotanist will help to generate better data, make the results of some analyses far more accessible and more readily acceptable to the target populations, and help to make local results more useful, scientifically acceptable, and more readily generalized to other regions and situations. The participation of social scientists experienced in ethnoscience, in the study of traditional agricultural systems and/or ethnobotanists could have helped improve, for instance, the methods that were employed for collecting local names and describing traits of local cultivars, and other activities central to the project.

3. The Project proposal for the second phase put more emphasis on identifying and building upon local knowledge and practice in agro biodiversity conservation, especially in the area of social networks in any Second Phase. There are many areas of indigenous and local knowledge and practice that are integral to the development and maintenance of existing crop diversity and seed systems. Greater use could be made of these resources in the project's biodiversity conservation efforts.

The project is relying on several now standard methods of disseminating seeds and knowledge about varieties in order to conserve agrobiodiversity on-farm. Introduced activities such as diversity fairs are at the center of these efforts. The project should make greater efforts to

explore and incorporate site-specific and locally-developed mechanisms including kin-based and other social networks through which seeds have long been exchanged and diversity has actually been created. It has been argued that some introduced and now standard methods of broad dissemination of agrobiodiversity, including seed fairs may actually be detrimental to the maintenance of crop diversity (Sirabangchokran et al. 2004). Exploring the operation of social networks and incorporating these into training and dissemination activities may prove to be an important and useful area to explore, which will also require more trained social scientists as highlighted above.

4. The Project proposal for the second phase should encourage all national projects to adopt management structures with only one clear coordinating institution as these appear to be the more effective and efficient model. The existence of multiple partnership institutions without a clear coordinating institution may make project management more cumbersome. This type of arrangement should be instituted throughout the project in the next phase to foster efficiency and administrative clarity, and to reduce transaction costs.

5. The Project proposal for the second phase clarify in its on-farm work, how both inter-specific and intra-specific crop diversity affect pest and disease problems and how these may be linked. Many, if not most of the project's farmers have a good deal of inter-cropped species diversity in their fields. In some cases, notably several sites in Uganda, the levels of inter-specific diversity are very high, and more visually prominent than the intra-specific diversity that is the focus of the project's work. The project's activities are restricted, however to examining only the role of intra-specific diversity in controlling and coping with pest and disease problems.

While we believe that examining both types of diversity would introduce a great deal of additional complexity to what are already complex project trials and experiments. As substantial research and community based work by Integrated Pest Management (IPM) programs have out in inter-cropping to manage pest and diseases (i.e., most IPM programs have this approach) it is recommended that stronger links be made during the next phase between this project and other on-going IPM programs and scientists who currently concentrate on inter-crop and inter-species diversity to control pest and disease damage. This will help the project to better identify the added role that intra-specific diversity has to reduce pest and disease damage with the farmer's total agroecological system.

LESSONS (TO BE) LEARNED

1. The Project included four participating countries: China, Ecuador, Morocco and Uganda, all carefully chosen to complement each other's strengths and to include a variety of important crop genetic diversity, and different types of resistance to major pests and pathogens in their local crop cultivars maintained in traditional farming systems. Each of the four countries also had at least two of its target crops in common with one of the other countries, linking primary centres of diversity to secondary centres of diversity. Such a carefully designed multi-country structure offers invaluable opportunities for South-South cooperation, for capacity building and for producing results with broad applicability and replicability. The design and implementation of this type of global or multi-country projects should be further encouraged and facilitated.
2. This project was carefully structured and scheduled so that a series of essential trials would be started simultaneously, and so that cross-site comparisons could be made. As many of the trials were done in farmers' fields, these project activities were vulnerable to a broad variety of disruptions and setbacks. Such problems accurately reflect conditions that beset farmers and even account for some of the agricultural biodiversity that is being tested and promoted, however, they can also result in serious project delays that affect more than one country as occurred in the project. This project's severely shortened schedule made accommodation of unexpected severe events especially challenging. A considerable amount of flexibility, including extra time to complete trials and comparisons needs to be built into such projects.
3. Bananas are one of the most important food crops in tropical countries and are the staple food for millions of people. Eighty-seven percent of global production is produced by small scale farmers and consumed locally. The crop occupies 30-40% of all land under crops and produces more than 10 million tons of product. The genetic uniformity and the inability to create new varieties makes the banana the most disease-vulnerable and therefore most heavily sprayed food crop in the world. Because of all of these factors (and more) the choice of *Musa* spp (bananas and plantains) as target crops by project was not only understandable but laudable. However, the length of time that it takes to collect and grow bananas and to evaluate them, made it very difficult to complete important trials and observations during the brief time period (shortened by the "phasing" of the project) of project implementation. The project adapted to this problem as best it could, but in the future, more generous time periods need to be planned and granted, or the inclusion of crops such as bananas in short-term projects should be reconsidered.

REVIEW OF OUTCOMES TO IMPACT (ROtI)

Results	Conservation and use of crop genetic diversity to control pests and diseases in support of sustainable agriculture					
Outputs	Outcomes	Rating (D - A)	Rating (D - A)	Impact (GEBs)	Rating (+)	Overall
		Intermediary				
1. Guidelines for Farmers Group Discussions developed, published and used Protocols for participatory assessment with lab & field analysis published and made available Methods and tools to estimate value of crop genetic diversity in reducing loss from pests and diseases tested & available Guidance on substituting diversity-rich practices for pesticides submitted to agricultural and environment development sectors	1. Increased genetic diversity of target crops in respect to pest and disease management. 2. Increased capacity and leadership abilities of farmers, local communities, and other stakeholders to make diversity-rich decisions in respect to pest and disease management	D	<p>Optimised use of crop and crop-associated Diversity</p> <p style="text-align: center;">↓</p> <p>Reduced risk of genetic vulnerability</p> <p style="text-align: center;">and</p> <p>Reduced use of pesticides</p> <p style="text-align: center;">↓</p> <p>Rural populations in the project sites benefit from reduced crop vulnerability to pest and disease attacks.</p> <p style="text-align: center;">↓</p> <p>Wider adoption of diversity rich methods in the project region</p>	C	Crop genetic diversity conserved in ways that Improve ecosystem and human health	
	Rating justification:		Rating justification:		Rating justification:	
	Project is at an early stage and the project's site specific outcomes are yet to be realised (but are on track). Project structures such as steering committees and technical teams include influential individuals at national level – this increases the likelihood that outcomes will have strong 'ownership'		The project design is geared towards up scaling farmer experiences on project sites to a larger scale. This work, however, is only just beginning with the main effort planned for a second phase of the project. Phase II design need to focus on the most effective means of promoting wide scale adoption and policy influence. Many important activities that will help move project outcomes towards impacts have been initiated.			

CONCLUSIONS AND RATINGS

Overall this is an exceptional project, planned by a team of highly experienced and innovative people at both the global and national levels, designed with skill and vision, and implemented with dedication. While there were several shortcomings in implementation, the overall rating for Phase 1 should be Highly Satisfactory. If fully funded and allowed to achieve its full potential this could be a project with major outcomes and impacts.

Criterion	Evaluator's Summary Comments	Evaluator's Rating
A. Attainment of Project Objectives and Results (overall rating) Sub criteria (below)	While it is still early to assess realistically whether the project is apt to attain all its objectives and results, indications at (or near) the end of Phase 1 are that given the opportunity to complete the original project's complex program of activities and outputs, this project's probability of having a positive impact on the conservation and use of crop genetic diversity to control pests and diseases in support of sustainable agriculture is high.	HS/S
A. 1. Effectiveness - overall likelihood of impact achievement (taking account of ROtI rating)	Because of the phasing of the project real outcomes were not anticipated at the time of this evaluation. Progress towards objectives met the expectations for Phase 1.	S
A. 2. Relevance	The project was highly relevant in terms of addressing several issues that are important to biodiversity conservation, environmental health and rural livelihoods. The project was also compatible with a substantial number of international processes and concerns.	HS
A. 3. Efficiency	From all indications, the project, although highly complex and involving four countries and many institutions, was run efficiently, reflecting largely effective planning and dedication on the part of most members of the project's local, national, and global teams. The project achieved most of its OVI's, and exceeded several of them.	HS

B. Sustainability of Project Outcomes (overall rating) Sub criteria (below)	The project is apparently very timely, so that many of the participating countries have been ready to accept -- at least partially -- the innovative approaches to pest control that the project tests and promotes. The project was also obviously well planned to include project personnel who are capable of ensuring the institutionalization of these approaches.	L
B. 1. Financial	Again, because of the phasing of this project accurate assessment of this parameter is difficult. However, indications are that the due to institutionalization mentioned above, at least some key parts of the project are likely to financially survive the end of project funding, given, of course that the project goes into a second phase. Otherwise much of what is now well-underway and highly promising will be lost.	ML
B. 2. Socio Political	As mentioned above, the project wisely selected members of its ISC and NSCs who were in positions to translate the project's work into politically viable policy changes. Again, this is definitely contingent on the project's finishing its work in a 2nd Phase.	L
B. 3. Institutional framework	As was noted above, the process of creating some relevant institutions and structures, i.e., farmers' groups and community genebanks seems quite promising, but only if there is a successful 2nd phase.	ML
B. 4. Environmental	In effectively combining production with conservation, concern for environmental values (e.g., lowering pesticide use) with decreased crop losses, the project is likely to be environmentally sustainable.	L
C. Catalytic Role and Replication	Important strides were made in: planning, capacity building, formation of committees and recruitment of personnel, as well	HS

	as in carrying out appropriate policy diagnostics, and production of high-quality research tools in Phase 1. These advances together have put the project in a very good position to catalyze considerable change	
D. Stakeholder Participation/ Public Awareness	The project appears to have successfully engaged a broad array of stakeholders beginning with its planning PDF-B stages and continuing through the implementation of Phase 1.	HS
E. Country Ownership/ Drivenness	Field visits showed several extraordinary examples of local and country drivenness and ownership.	HS
F. Achievement of Outputs and Activities	Overall, the results presented in Table 1 provide a strong and objectively verified indication that the project has been very largely on track and that by Year 3 had made more than satisfactory progress in conducting a broad array of planned activities and made significant progress towards achievement of the intended outcomes.	HS/S
G. Preparation and Readiness	The project appears to have been thoroughly and realistically planned (with few exceptions), and based solidly on previous experience and existing institutions. The teams of senior personnel that planned and implemented the project at both the global and the national levels was mostly very highly qualified and well prepared.	HS
H. Implementation Approach and Adaptive Management	The project apparently responded as well as it could to the challenge that the unexpected "phasing" presented. Several disruptions of the project have mostly produced reasonable reactions and attempts to compensate.	S
I. Monitoring and Evaluation (overall rating) Sub criteria (below)	The M& E plan appeared to be more than adequate, although the phasing of the project did cause	S

	some disruption and alteration of the original planned activities.	
I. 1. M&E Design	The design for M&E activities was very thorough, was well explained to personnel at all project levels, and was adequately communicated to ensure compliance.	HS
I. 2. M&E Plan Implementation	The M& E plan was largely complied with in a timely and thorough manner. The Mid-Term evaluation was perhaps not as thorough as had been originally planned.	S
I. 3. Budgeting and Funding for M&E activities	Budgeting for M& E activities appeared largely adequate. A larger budget would have allowed field visits to all 4 participating countries and thus a more complete evaluation	S
J. Financial Planning and Control	There was no indication from interviews or any documentary evidenceat all that there were any substantive flaws in the way financial matters were managed at any level by the project.	HS
K. UNEP Supervision and Backstopping	The UNEP liaison appeared to be very knowledgeable and interested in the project and readily available to aid and guide project participants as well as the evaluator. There was no indication that this had not happened throughout Phase 1	HS
Overall Rating	See general conclusions above.	HS

ANNEX 1. A list of interviewees, AND FIELD SITES VISITED DURING THE EVALUATION

1. Marieta Sakalian (UNEP)
2. Devra Jarvis, Project Director (Bioversity)
3. Carlo Fadda, Global Project Coordinator (Bioversity)
4. Michael Milgroom, Cornell University, Member, International Roster of Experts
5. Jose Ochoa, Project Coordinator, Ecuador
6. Rose Nankya, National Project Manager, Uganda
7. John Mulumba, Project Coordinator, Uganda
8. Brahim Ezzahiri, IAV, Morocco
9. Jemima Tumushabe (District Agriculture Officer, (Bushenyi District, Uganda)
10. James Bitarabeho, Subcounty Chief, Rubaya and Farmers, Rubaya village
11. Michael Betonde (Coordinator (extension), Kabale , National Agricultural Advisory Services
12. Ruth Katushabe, Site Coordinator, Rubaya
13. Zelida Lindabo, Community Development Officer, Rubaya
14. Francis Lubowa, Site Coordinator, Nakaseke
15. Field assistants and farmers, Nakaseke village
16. Francis Ogwal, National Resource management Specialist (Biodiversity and Rangelands)National Environment Management Authority, Uganda
17. José Villacís, Director, INIAP - Pichilingue, Ecuador
18. Carmen Suarez, Site Coordinador , INIAP- Pichilingue, Ecuador
19. Diego Vaca, Project Assistant, INIAP -Pichilngue, Ecuador
20. Pablo Jacome, FAO Representative, Ecuador
21. Edwin Echeverria Vaca, Administrative Director, Municipality of Cotacachi, Ecuador
22. Cristian Paz Municipality of Cotacachi, Ecuador,
23. Ruminnahui Androngo, President,UNORCAC, Cotacachi, Ecuador
24. Pablo Saenz, UNORCAC, Cotacachi, Ecuador
25. Carlos Olta, UNORCAC, Cotacachi, Ecuador
26. Hugo Carrera, UNORCAC, Cotacachi, Ecuador
27. Cesar Tapia, Biodiversity Specialist, INIAP Ecuador
28. Eduardo Morillo, National Department of Biotechnology, INIAP, Ecuador
29. Patricio Gallegos, Chief, Department of Plant Protection, INIAP, Ecuador

Also; groups of farmer project participants in all field sites in Uganda and Ecuador

Sites Visited for this Evaluation

Uganda:

Visits to Government offices in Kampala and Kabale

Field Sites:

1. Kiziba Village (Bushenyi District (Seed Fair and Inauguration of community genebank)
2. Robaya Village (Kabale District)
3. Kyamnakassa Village (Nakaseke District)

Ecuador

Visits to Government and NGO Offices in Quito, Pichilingue (INIAP), and Cotacachi

Field Sites:

1. La Maná, (Cotopaxi), Ecuador
2. Morochos Village (Cotacachi), Ecuador

ANNEX 2. Summary co-finance information and a statement of A project expenditure by activity.

ANNEX X Format for Report on COFINANCING

Title of Project:		Conservation and use of crop genetic diversity to control pests and diseases in support of sustainable agriculture - Phase I					
Project Number:		FMS: GFI 1020 07 61		IMIS: GFL 2020 27-5-1063			
Name of Executing Agency:		Universidad Politécnica de Valencia, Valencia, Spain; Instituto Nacional de Investigaciones Agropecuarias (INIA), Chile; Escuela Superior de Agricultura y Veterinaria (ESAV); Hassan II, Rabat, Morocco; National Agricultural Research Organization, Entebbe, Uganda; Diversitas International, Rome, Italy.					
Project Duration:	From: 30/03/07 To: 26/02/11		In-kind Contributions				Comments
Reporting Period:	From: 31/03/2010 to 26 February 2011		In-kind Contributions				Comments
Source of Co-financing	Cash Contributions		Budget original (at time of proposal by GEF)	Budget latest revision (at time of approval by GEF)	Received to date	Budget original (at time of proposal by GEF)	Budget latest revision (at time of approval by GEF)
China	530,103	1,698,274	1,893,674	642,693	563,507	993,667	China increased his contribution to build the combined variety centre.
Ecuador	18,053	90,356	97,256	293,404	295,798	293,784	For other reasons than cash contribution no buy laboratory equipment.
Morocco	50,006	68,729	69,358	398,333	401,418	400,409	
Uganda	12,554	26,040	29,860	265,049	285,981	283,561	
Diversity	240,687	297,891	327,981	578,003	726,030	720,220	he increased in-kind contribution from Diversity to give to the additional resources (staff (logistical) needed for the completion of the activities during the grant duration from 31 August 2010 to 26 February 2011.
SBC	750,000	517,258	617,258	0	0	0	The increased cash contribution from SBC received and received in guarantee project continuity during bridging phases.
FAO	-	17,728	17,728	90,000	90,000	90,000	WCO added in cash contribution its cover travel expenses of staff salaries.
US University Consortium lead by WSU	-	6,436	1,830	173,472	88,471	89,421	WSU and Cornell university added in cash contribution compensated WCO travel expenses with project activities.
University of Kassel	0	0	0	29,000	10,000	90,330	
CSIRO	0	0	0	24,000	10,000	20,330	
UPWARD-CIP	0	0	0	60,000	18,000	78,850	
IHRI	0	0	0	91,000	0	0	
IFPRI	0	0	0	27,000	27,000	27,330	
Total	1,611,768	3,354,479	3,354,479	2,662,676	2,491,843	2,491,843	All amounts in US dollars

Name: Cristo Fadó
 Position: Global Photo Manager
 Date: 7/29/2011

ANNEX 3. The expertise of the evaluator (brief CV).

Curriculum Vitae

CHRISTINE PADOCH

Present Position

Matthew Calbraith Perry Curator of Economic Botany
Institute of Economic Botany
The New York Botanical Garden
Bronx, New York 10458
Tel. (718) 817-8975
Fax (718) 220-1029
Email: cpadoch@nybg.org

Education

- 1969 - 1978 Columbia University, Department of Anthropology, Ph.D., 1978.
- 1971 University of Florida, two quarters of study: courses in tropical soils, tropical botany, tropical and systems ecology.
- 1965 - 1969 Barnard College, A.B. cum laude, 1969.

Professional Employment

- 1999 – pres. Matthew Calbraith Perry Curator of Economic Botany, Institute of Economic Botany, The New York Botanical Garden.
- 1997 - 1999 Senior Curator, Institute of Economic Botany, The New York Botanical Garden.
- 1995 - 1997 Curator, Institute of Economic Botany, The New York Botanical Garden.
- 1992 - 1995 Scientist, Institute of Economic Botany, The New York Botanical Garden.
- 1983 - 1992 Associate Scientist, Institute of Economic Botany, The New York Botanical Garden.
- 1978 - 1983 Assistant Professor of Environmental Studies and Anthropology,
 Institute for Environmental Studies and Department of Anthropology,
 University of Wisconsin-Madison.
- Member, Core Faculty, Center for Southeast Asian Studies, University of Wisconsin-Madison.

Other Major Professional Activities

1991 - pres.	Associate Editor, <i>Human Ecology</i>
2000 - pres.	Professor Adjunct, Yale University, School of Forestry and Environmental Studies.
1991 - pres.	Adjunct Senior Research Scientist, Center for Environmental Research and Conservation, Columbia University.
1992 - pres.	Adjunct Professor, Graduate Program in Biology, City University of New York.
1995 - pres.	Member, Board of Directors, Instituto de Pesquisa Ambiental da Amazônia.
2004 – pres.	Member, Scientific Advisory Committee, Marcio J. Ayres Research Station, Yaboti Biosphere Reserve, Argentina.
2006 – pres.	Vice Chair, Board of Directors, Global Diversity Fund, US.
2001- 2007	Board of Trustees, Center for International Forestry Research (CIFOR). Board Vice Chair, Chair, Programme Committee, and ex-officio Member, Board of Trustees, World Agroforestry Center (ICRAF).
1998 - 2002	Vice-Chair, Scientific and Technical Advisory Panel (STAP), Global Environmental Facility (GEF).
1994 - 2002	Deputy Scientific Coordinator, Program on People, Land Management and Environmental Change (PLEC), a GEF-funded worldwide demonstration and applied research project of the United Nations University and the United Nations Environmental Programme.
2000 – 2001	Member, Scientific Steering Committee, DIVERSITAS
1996 - 2001	Scientific Advisor, Forest Management and Biodiversity Conservation in Gaoligong Mountains Programme (China).
1996 - 2001	Scientific Advisor, Committee for the Development of Baoshan Prefecture (China).
1994 - 1996	Council Member, Society for Economic Botany.
1993 - 1995	Co-coordinator, Section 9, Global Biodiversity Assessment, UNEP.
1992 - 1995	Member, Advisory Committee for the Pew Scholars Program.
1994 - 1995	Member, Board of Advisors, The Rainforest Foundation.
1986 - 1995	Series Editor, <i>Advances in Economic Botany</i>

1991 - 1992	Ad-hoc Biodiversity Working Group, UNEP-GEF.
1990 - pres.	Member, Advisory Committee, Columbia University Press Series: Perspectives in Biological Diversity.
1989 - 1992	Member, Advisory Committee on Research Priorities in Biodiversity, National Research Council.
1989 - 1994	Co-chair, Ethics Committee, Society for Economic Botany.
1988 - 1991	Member, Task Force on Natural Resources and the Environment, Latin American Studies Association.
1980 - 1989	Member, Directorate, U.S. Committee for Man and Biosphere Program, Project 1: Tropical and Subtropical Forests.
1986 - 1988	Advisor, Museum exhibit on tropical forests and deforestation, Smithsonian Institution Traveling Exhibition Service.
1987 - 1988	Advisor, Museum exhibit on Bornean ethnology, University Museum, University of Pennsylvania.
1985	Consultant, Oficina Nacional de Evaluacion de Recursos Naturales (Lima, Peru). Advisor on social science component of GIS project.
1983	Advisor, Cooperative Research and Training Project, Institut Pertanian Bogor (Indonesia) and University of Wisconsin.
1982 - 1983	Member, Advisory Panel, Assessment of Technologies for Sustaining Tropical Forest Resources. Office of Technology Assessment, U. S. Congress.
	and others

Recent Major Fellowships and Grants

2009	National Science Foundation, CNH Program. <i>Fires in Western Amazonia: Understanding and Modeling the Roles of Climatic, Social, Demographic and Land Use Change</i> . Co-PI (3 years).
	Tinker Foundation. <i>Abandoned Lands, Resource Degradation, and the Future of Peruvian Amazonia</i> . 2 years.
2007	Tinker Foundation: <i>Sustainable Forestry for an Urbanizing Amazonia: Phase 2</i> . (2 years).
2006 project: <i>near its center of</i>	McKnight Foundation. Collaborative Crop Research Program grant for <i>Agrodiversity for in situ conservation of local rice germplasm in and diversity</i> Co-PI (4 years).

- 2005 Tinker Foundation: *Sustainable Forestry for an Urbanizing Amazonia*
 (2 years)
- 2004 National Science Foundation, HSD Program *Global Markets, Regional Landscapes, and Household Decisions: Modeling the History of Transformation of the Amazon Estuary*. Co-PI (3 years)
- 2001 *McKnight Foundation. Collaborative Crop Research Program grant for project:*
 Agrodiversity of in situ Management and Conservation of Thailand's Native Rice
 Germplasm Co-PI (4 years).
- 1998 Global Environment Facility grant to fund People, Land Management, and Environmental Conservation (PLEC) program for 4 years. (with Harold Brookfield and other senior PLEC staff.)
- 1994 Ford Foundation grant for conference on *Conservation and Development of the Amazon Floodplain* (with Andrew Henderson).
- 1992 Teresa and H. John Heinz III Foundation grant for project on sustainable resource management in the floodplains of Amazonia (with M. Hiraoka).
- 1991 Biodiversity Support Program (WWF, WRI, TNC-USAID) grant for international conference on *Interactions of People and Forests in Kalimantan* (with N. Peluso).
- 1990 Social Science Research Council, grant for Kalimantan conference (see above).
- 1989 United States Agency for International Development, grant to study the ecology, use, and management of forest fruits in West Kalimantan, Indonesia (with C. M. Peters).
- 1988 U. S. Man and Biosphere Committee, grant to study the ecology, use, and management of non-timber forest products in West Kalimantan, Indonesia (with C. M. Peters).
- 1984 Exxon Corporation, grant to conduct botanical and socioeconomic research on promising native fruits of the Peruvian Amazon.

Major Field Research

- 2005- pres. Amazonian Peru. Research on effects of urbanization, fires, and land use change on forest resources and livelihoods.
- 2002 - pres. Northern Thailand Laos, and Cambodia. Study of diversity and change in smallholder rice agrobiodiversity and production systems.

1993 - 2008.	Amapá, Brazil. Study of sustainable management of floodplain resources.
1990 - 2000	West Kalimantan, Indonesia. Study of traditional forest management and fruit cultivation practices.
1984 - 1987	Iquitos, Peru. Patterns of cultivation, use, and marketing of selected native fruits of the Iquitos area. Cultivation systems in communities along the lower Ucayali River.
1982 - 1983	Iquitos, Peru. Study of the economic importance of trade in non-timber forest products.
1980	East Kalimantan, Indonesia. Study of Lun Dayeh patterns of resource use and population dynamics as a model for development in other upland areas of Kalimantan.
1973 - 1976	Sarawak, Malaysia. Comparative study of several communities of Iban shifting cultivators. Emphasis on agricultural practices, demography, nutrition, health, and patterns of land tenure and leadership.
1970	Guatemala. Study of changes in agricultural practices among migrants from highland Alta Verapaz to lowland Izabal.

Evaluation Experience

1994	Member, Field Evaluation Team, Evaluation of Institutional Needs of Science Centers in Brazilian Amazonia: MPEG and INPA. National Academy of Sciences (USA).
1997-2000	Member, International Scientific Advisory Group, Brazilian Ministry of Science and Technology. 3 field evaluations Pilot Program to Protect the Brazilian Rainforest (PPG7): <i>Programa de Pesquisa Dirigida, Programa de Centros de Ciências</i> .
1998	Team Member, CIFOR External Programme and Management Review, 1998.
1999	Team Member, WB-DFID evaluation 2 projects of the Pilot Program to Protect the Brazilian Rainforest (PPG7): (<i>Programa de Pesquisa Dirigida, Programa de Centros de Ciências</i>)
2000	Member, GEF-STAP Selective Review of GEF project <i>Ethiopia: A Dynamic Farmer-Based Approach to the Conservation of African Plant Genetic Resources</i> .
2001	Internal field evaluations of PLEC Projects in China, Ghana.

- 2006 Chair, Evaluation Team, Mid-term Review of National Science Foundation-funded Program on Working Forests in the Tropics, University of Florida, Gainesville, FL, USA.
- 2006 Member, Project Evaluation Team. Evaluation of CIRAD/CNRS/CEFE Project on Management of Genetic Resources and Social Dynamics (UPR 67), Montpellier, France.
- Also: Desk reviews of numerous GEF projects (as member of Roster of Experts and subsequently, 1998-2002, as Vice Chair, GEF-STAP); also numerous project reviews for National Science Foundation (US), Danish Consultative Research Committee for Development Research (FFU), Austrian Institute for Science and Technology, and many other government institutions and private foundations.

Major Publications

Books & Journal Special Issues

- Under Review Hecht, S.B., K. Morrison, C. Padoch (eds.) *The Social Lives of Forests*. University of Chicago Press.
- In Press Pinedo-Vasquez M., E. Brondizio, Padoch C. and M. Ruffino. *The Amazonian Varzea: The decade past and the decade ahead*. Springer/NYBG Press.
- 2009 Mertz, O. Padoch, C. Fox, J., Cramb, R. Leisz, S. Nguyen Thanh Lam and Tran Duc Vien (guest eds.) Special Issue on Swidden Agriculture in SE Asia. *Human Ecology* 37(3).
- 2007 Jarvis, D.I., C. Padoch and H. D. Cooper. (eds.) *Managing Biodiversity in Agricultural Ecosystems*. Columbia University Press: New York.
- 2003 Padoch, C. and N. L. Peluso. (eds.) *Borneo in Transition: People, Forests, Conservation, and Development* (Second Edition). Oxford University Press: Kuala Lumpur. (Includes: New Introduction and updated chapters.)
- 2002 Brookfield, H., C. Padoch, H. Parsons and M. Stocking. *Cultivating Biodiversity: The understanding, analysis and use of agrodiversity*. ITDG Publishing: London.
- 1999 Padoch, C., J. M. Ayres, M. Pinedo-Vasquez and A. Henderson (eds.). *Varzea: Diversity, Development, and Conservation of Amazonia's Whitewater Floodplain*. New York Botanical Garden Press.

- 1996 Padoch, C. and N. L. Peluso. (eds.) *Borneo in Transition: People, Forests, Conservation, and Development*. Oxford University Press: Kuala Lumpur.
- 1992 Redford, K. and C. Padoch (eds.) *Conservation of Neotropical Forests: Traditional Resource Use*. Columbia University Press: New York.
- 1990 Denevan, W. M. y C. Padoch (editores). *Agroforestería tradicional en la peruana*. CIPA: Lima.
- 1988 Denslow, J. S. and C. Padoch (eds.). *People of the Tropical Rain Forest*. California Press: Los Angeles and Berkeley, CA.
- the Peruvian Garden: Bronx, NY.
- 1982 Padoch, C. *Migration and Its Alternatives Among the Iban of Sarawak*. Instituut voor Taal-, Land-, en Volkenkunde, Verhandelingen 98. Leiden: Martinus Nijhoff.

Articles and Book Chapters

- 2009 Mertz, O., C. Padoch, J. Fox , R. A. Cramb, S.J. Leisz, Nguyen Thanh Lam and Tran Duc Vien. Swidden Change in Southeast Asia: Understanding Causes and Consequences. *Human Ecology* 37(3): 259-264.
- Rerkasem, K., D. Lawrence, C. Padoch, D. Schmidt-Vogt, A. D. Ziegler, and T .B. Bruun. Consequences of swidden transitions for crop and fallow biodiversity in Southeast Asia. *Human Ecology* 37(3): 347-360.
- Mertz, O., S.J. Leisz, A. Heinemann, K. Rerkasem, Thiha, W. Dressler, Van Cu Pham, Kim Chi Vu, D. Schmidt-Vogt, C.J.P. Colfer, M. Epprecht, C. Padoch, and L. Potter. Who Counts? Demography of Swidden Cultivators in Southeast Asia. *Human Ecology* 37(3):281-289.
- Pinedo-Vasquez M. & C. Padoch. Urban and rural and in-between: Multi-sited households, mobility and resource management in the Amazon floodplain. In: M. Alexiades (ed.), *Mobility and Migration In Indigenous Amazonia: Contemporary Ethnoecological Perspectives*. Berghahn: Oxford and New York.
- 2008 Putzel, L., C. Padoch and M. Pinedo-Vasquez. The Chinese timber market and the logging of the Peruvian Amazon. *Conservation Biology* (22(6):1659-61.

- Pinedo-Vasquez, M., C. Padoch, R. R. Sears, E. S. Brondizio, and P. Deadman Urbano e rural: famílias multi-instaladas, mobilidade e manejo dos recursos de várzea na Amazônia 11(2): 43-56. (in Portuguese)
- Padoch, C., E. Brondizio, S. Costa, M. Pinedo-Vasquez, R. R. Sears, and A. Siqueira. Urban forest and rural cities: multi-sited households, consumption patterns, and forest resources in Amazonia. *Ecology and Society* 13 (2): 2. [online] URL: <http://www.ecologyandsociety.org/vol13/iss2/art2/>.
- Padoch, C. M. Pinedo-Vasquez, and A. Roberts. Process in an eventful environment. Pp. 135-144. In Walters, B.B., B.J. McCay, P. West, and S. Lees (eds.) *Against the Grain: The Vayda tradition in human ecology and ecological anthropology*. Altamira Press: Lanham, New York, Toronto, Plymouth, UK.
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Other	Book reviews in: <i>Human Ecology, Journal of Asian Studies, Development and Change, Reviews in Anthropology, Pacific Viewpoint, The Contemporary Pacific, Garden, American Anthropologist, Journal of Forest History, Conservation Biology, Quarterly Review of Biology</i> , and others.
	Invited lectures at: Ceiba (Puerto Iguazu, Argentina); CNRS (France); USDA (Beltsville, MD); University of Ghana (Legon); Kwame Nkrumah University of Science and Technology (Kumasi, Ghana); University of Development Studies (Tamale, Ghana); Institute of Forest Ecology (Kunming, China); University of Copenhagen; EMBRAPA-Amapa (Brazil), Oficina Nacional de Evaluacion de Recursos Naturales (Peru), Dutch Agricultural University (Wageningen), Kunming Institute of Botany (China), University of Iowa; Indiana University; University of Miami, University of Florida, University of Illinois, New York University, Clark University, Harvard University, Rutgers University, Cornell University, Beloit College, Mayaguez Institute of Tropical Agriculture, Yale University, Fairleigh Dickinson University, University of Colorado, Miami University, Aspen Global Change Institute, and others.
Languages	Read, write, and speak: Spanish, Portuguese, French, Ukrainian, Indonesian, Iban and Lun Dayeh (two Bornean languages). Read: Polish, Russian.

ANNEX 4. TERMS OF REFERENCE FOR THE EVALUATION

Terminal Evaluation of the UNEP GEF project “Conservation and Use of Crop Genetic Diversity to Control Pests and Diseases in Support of Sustainable Agriculture, Phase I”

1. PROJECT BACKGROUND AND OVERVIEW

THE PROJECT IDENTIFICATION TABLE SHOULD BE ADDED IN HERE

Project rationale

The UNEP/GEF-supported project “Conservation and Use of Crop Genetic Diversity to Control Pests and Diseases in Support of Sustainable Agriculture” was conceived to conserve crop genetic diversity in ways that increase food security and improve ecosystem health, and to enhance the conservation and use of crop genetic diversity by farmers, farmer communities, and local and national institutions, as well as to minimize on-farm pest and disease damage.

The outcome of the project will be that resource-poor rural populations will benefit from reduced crop vulnerability to pest and disease attacks through increased use of genetic diversity on-farm. By providing farmers and NARS researchers with the tools and practices needed to manage local crop (intra-specific) genetic diversity, farmers’ options to combat pest and disease on-farm will be expanded, food security will be increased, genetic diversity conserved, and ecosystem health improved. The project aims to develop tools to determine when and where intra-specific crop diversity can be used to manage pest and disease pressures by integrating existing farmer knowledge, belief and practices with advances in the analysis of crop-pest/disease interactions. Unlike Integrated Pest Management (IPM) strategies, which have focused on using agronomic management techniques to modify environment around predominantly modern cultivars, this project is unique in that it concentrates on the management of the local crop cultivars themselves as the key resource, making use of the intra-specific diversity among cultivars maintained by farmers.

The *development objective* of this project is to conserve crop genetic diversity in ways that increase food security and improve ecosystem health.

The *immediate object* of the project is to enhanced conservation and use of crop genetic diversity by farmers, farmer communities, and local and national institutions to minimize pest and disease damage on-farm.

The project has three anticipated outcomes:

Outcome 1: Rural populations in the project sites benefit from reduced crop vulnerability to pest and disease attacks.

Outcome 2: Increased genetic diversity of target crops in respect to pest and disease management.

Outcome 3: Increased capacity and leadership abilities of farmers, local communities, and other stakeholders to make diversity-rich decisions in respect to pest and disease management.

Measurement of progress and achievement of these outcomes are based on seven impact indicators *given in the project document*:

- i. Food insecurity is reduced for 10% of the families in 31 local and indigenous communities.
- ii. Crop yields are increased by 10% from reduced crop losses from disease and pest damage for at least 20% of the farms (equivalent to 52,600 ha) in project sites.
- iii. Diversity-rich practices replace pesticide use to minimize crop damage for 15% of project site regions (equivalent to 106,900 ha).
- iv. Diversity for resistance is increased by 10% on 30% of farmer fields in the project sites (equivalent to 78,900 ha).
- v. Use of crop genetic diversity to manage pest and disease pressures occurs on 20% of the farms (equivalent to 142,600 ha) in the project site regions in four countries.
- vi. At least 20% of the farmers of the project site regions (equivalent to 6,200 families) implement diversity-rich methods developed in the project to increase use of crop genetic diversity to manage pest and disease pressures on-farm.
- vii. At least two male and female farmer representatives in each site have participated in national committees or decision making fora for planning and evaluation of diversity-rich methods to manage pest and diseases.

This project was designed as 5 year (not phased) project and the 100% achievement of project objectives was aimed at the end of the project completion. Due to funds shortage at the end of GEF 3 GEF Secretariat requested that the project was phased. According to the approved by the GEF Council project document it is expected that only certain % of the outcomes will be delivered at the end of Phase 1. However, Outcomes, Outputs and OVIIs of the six year project were maintained, with milestones noted for the current first three-year phase. All details are provided in **Annex B1: Phase I - Objectively Verifiable Indicators and Milestones (years 1, 2 and 3 of project implementation)**.

Relevance to GEF Programmes

The project was developed within the framework of Operational Programme 13: Conservation and Sustainable Use of Biological Diversity Important to Agriculture. It is consistent with Strategic Priorities Two and Four in Biodiversity for GEF Phase III. The project aimed to: a) develop globally applicable and relevant criteria and tools to determine when and where intra-specific genetic diversity can provide an effective management approach for limiting crop damage caused by pests and diseases in agroecosystems; b) demonstrate replicable best practices that determine how to optimally use crop genetic diversity to reduce pest and disease pressures; and; c) support the mainstreaming of agrobiodiversity conservation and sustainable use strategies beyond site-specific successes by effectively disseminating project tools, methodologies, practices and policies to stakeholders (farmers, community organisations, universities, government ministries) that are involved in sustainable use and conservation of agrobiodiversity.

Executing Arrangements

The Implementing Agency (IA) for this project was UNEP and the Executing Agencies (EA) were Bioversity International (former International Plant Genetic Resources Institute, IPGRI). Project partner countries included China, Ecuador, Morocco, Uganda.

The lead national executing agencies in the focal countries were:

China: Yunnan Agricultural University, Kunming, Yunnan;

Ecuador: Instituto Nacional Autónomo de Investigaciones Agropecuarias (INIAP), Quito;

Morocco: Institut Agronomique et Vétérinaire (IAV) Hassan II, Rabat, ;

Uganda: National Agricultural Research Organisation, Entebbe;

Project Activities

The project comprised of activities grouped in four components.

Component 1: Criteria and Tools

- 1.1 Develop participatory criteria and tools to determine whether pest and or disease are a key limiting factor to production in farmers' systems.
- 1.2 Determine whether intraspecific diversity with respect to resistance exists within the site.
- 1.3 Identify other sources of intraspecific diversity with respect to resistance from earlier collections from the site or from similar agroecological environments (*ex situ* collections, other sites with similar environments).
- 1.4 Develop criteria and tools to determine whether diversity, with respect to pest and/or disease control, exist but is not accessed and/or not optimally used.
- 1.5 Develop criteria and tools to determine whether there is diversity in virulence and aggressiveness of pathogens and biotype diversity for pests.
- 1.6 Determine the movement and transmission mechanisms of pest and diseases within and among the sites.

Components 2: Practices and Procedures

- 2.1 Identify and compile farmer knowledge and practices in on-going systems where intra-specific diversity is being used to manage pest and disease pressures and promote good practices.
- 2.2 Conduct experiments using intra-specific diversity that show the effect of diversity on controlling pest and disease incidence.
- 2.3 Evaluate past and present use of crop diversity by national breeding programmes to manage pest and disease pressures.
- 2.4 Conduct simulation modelling to look at how patterns of intra-specific diversity distribution and population sizes might affect pest and disease incidence over space and time.
- 2.5 Compare the range of diversity rich practices and options to determine appropriate spatial and temporal scales to manage pest and diseases pressures.
- 2.6 Provide sets of options for farmers, farmer organizations, NGOs and extension works of diversity rich solutions to pest and disease management in project sites.

Components 3: Capacity and Leadership

- 3.1 Team building of farmers, field technicians, researcher, policymakers at regional and local level and education institutions (strengthen the ability to work in a group in a participatory manner).
- 3.2 Provide opportunities to increase gender equity in project management and participation project activities and training opportunities.
- 3.3 Identify key farmers (male and female) and farmer groups who use intra-specific crop diversity to manage their production systems and support these farmers with diversity rich options to manage pests and diseases.
- 3.4 Reinforce the local farmer organizations in seed activities related to pest and disease management.
- 3.5 Empower male and female farmers and other stakeholders to determine when diversity rich choices are appropriate for their circumstances.
- 3.6 Identify and promote local methods for farmers to efficiently use crop diversity information.

- 3.7 Build local institutional capacities to sustain project activities through training and inputs to local extension, NGOs, CBOs, local research stations, middle and technical schools and local colleges.
- 3.8 Enhance capacity of research institutes to analyze local crop diversity with respect to pest and disease resistance through training and facilities.
- 3.9 Develop the understanding of national and international legal and economic policies related to use of local crop diversity to manage pest and disease pressures
- 3.10 Set up an international network of persons from national, regional and global levels to compile and feed back information on using intraspecific diversity to manage pest and disease pressures

Components 4: Mainstreaming and Replication

- 4.1 Document successful experiences from the project output of interdisciplinary work and of farmers' participatory research on use of diversity to manage pest and disease and recognition of such team efforts (prizes, awards, etc.).
- 4.2 Promote public appreciation and awareness of the use of agrobiodiversity to minimize pest and disease pressures for farmers, extension and education programs, and policy makers.
- 4.3 Develop mechanisms to disseminate information and materials to farmers and communities on previously collected (*ex situ*) and/or characterized/evaluated germplasm from farmers' sites and similar agroecosystems.
- 4.4 Compare diversity rich approaches to other options (e.g., agronomic practices, chemical use).
- 4.5 Promote collaboration with agricultural extension services and local NGOs to increase access of locally adapted farmer seeds across villages and regions with similar agroecosystems.
- 4.6 Mainstream the inclusion of local crop diversity and techniques on seed cleaning of local crop cultivars and other methods of seed quality improvement into agricultural extension and NGO development packages.
- 4.7 Adapt the national breeding strategy to include farmers' knowledge with local materials in breeding programmes.
- 4.8 Work with education sectors to supply materials on the use of local crop diversity to manage pest and disease pressures to integrate into the national curriculum.
- 4.9 Provide information for cost effective design of policies to support the maintenance of diversity on farm.
- 4.10 Develop protocols for benefit sharing of genetic material and new methods of diversity management.

Budget

At project inception the following budget prepared:

	<u>GEF</u>	<u>Co-funding</u>
Project Development Fund Block B	350,000	370,000
GEF Full Size Grant	3,411,148	4,274,345
TOTAL (including Block B)	3,761,148	4,644,345

Co-funding sources:

Name of Co-financiers (source)	Classification	Type	At Concept (\$)	At Work Program (\$)		At CEO Endorsement Phase I (\$)**
				Full project: Phases I + II	Phase I	
Bioversity (IPGRI)	Exe. Agency	in kind	N/A	1,080,000	576,000	576,000
Bioversity (IPGRI)	Exe. Agency	cash	N/A	200,000	196,167	240,667
Swiss Agency for Development and Cooperation (SDC)	Multilat. Agency	cash	N/A	750,000	750,000	750,000
Governments	Exe. Agency/ Nat'l Gov't/ Local Gov't	in kind	N/A	3,374,922	1,594,102	1,594,102
Governments	Exe. Agency/ Nat'l Gov't/ Local Gov't	cash	N/A	1,225,082	621,101	621,101
FAO	Multilat. Agency	in kind	N/A	150,000	90,000	90,000
US University consortium lead by Washington State University together with Oregon State University and Cornell University	University	in kind	N/A	309,124	173,474	173,474
University of Kassel	University	in kind	N/A	52,500	28,000	28,000
CSIRO	Bilateral Agency	in kind	N/A	40,000	24,000	24,000
UPWARD	Multilat. Agency	in kind	N/A	100,000	60,000	60,000
IFPRI	Multilat. Agency	in kind	N/A	150,000	90,000	90,000
IRRI	Multilat. Agency	in kind	N/A	45,000	27,000	27,000
FORD FOUNDATION	International Partner	cash	N/A	44,500	44,500	Included under IPGRI Cash contribution
OHTERS		Cash	N/A	950,500	0	
Total Co-financing			N/A	8,471,628	4,274,345	Phase I: 4,274,345

TERMS OF REFERENCE FOR THE EVALUATION

1. Objective and Scope of the Evaluation

The objective of this Terminal Evaluation is to examine the extent and magnitude of any project impacts to date and determine the likelihood of future impacts. The evaluation will also assess project performance and the implementation of planned project activities and planned outputs against actual results. The evaluation will focus on the following main questions:

4. Did the project managed to develop criteria and tools to determine when and where intra-specific genetic diversity can provide an effective management approach for limiting crop damage caused by pests and diseases in the participating countries?
5. Assess to what extent the project outputs produced have the weight of scientific authority/ credibility, necessary to influence policy and decision-makers, to take actions, particularly at the national level, that support the adoption of genetic diversity rich methods for limiting damage caused by pests and diseases.
6. To what extent the project outputs produced increased capacity and leadership abilities of farmers and local communities to make diversity rich decisions in respect to pest and disease management?

2. Methods

This Terminal Evaluation will be conducted as an in-depth evaluation using a participatory mixed-methods approach, during which the UNEP/DGEF Task Manager, key representatives of the Executing Agencies and other relevant staff are kept informed and consulted throughout the evaluation. The consultant will liaise with the UNEP Evaluation Office and the UNEP/DGEF Task Manager on any logistic and/ or methodological issues to properly conduct the review in as independent a way as possible, given the circumstances and resources offered. The draft report will be delivered to the Evaluation Office. The Chief of Evaluation will circulate the report to UNEP/DGEF Task Manager, who will then distribute the report to key representatives of the Executing Agencies for comments. Any comments or responses to the draft report will be sent to the UNEP Evaluation Office for collation and the consultant will be advised of any necessary or suggested revisions.

The findings of the evaluation will be based on multiple approaches:

2. A desk review of project documents including, but not limited to:
 - (a) The project documents, outputs, monitoring reports (such as progress and financial reports to UNEP and GEF annual Project Implementation Review reports) and relevant correspondence.
 - (b) Notes from the Steering Group meetings.
 - (c) Other project-related material produced by the project staff or partners.
 - (d) Relevant material published on the project web-site.
3. Interviews with project management and technical support.
4. Interviews and telephone interviews with intended users for the project outputs and other stakeholders involved with this project, including in the participating countries and international bodies. The Consultant shall determine whether to seek additional information and opinions from representatives of donor agencies and other

organisations. As appropriate, these interviews could be combined with an email questionnaire, online survey, or other electronic communication.

5. Interviews with the UNEP/DGEF project Task Manager and Fund Management Officer, and other relevant staff in UNEP dealing with Biodiversity related activities as necessary. The Consultant shall also gain broader perspectives from discussions with relevant GEF Secretariat staff.
6. Field visits² to project staff and target audiences. The evaluator will make field visits to Uganda during the International Steering Committee (ISC) meeting to meet with all partner countries ISC members and project coordinators. A visit will also be made to national project partners in Uganda and Ecuador and key audiences for the project's outputs will be canvassed for their opinions in relation the project in these countries.

Key Evaluation Principles

In attempting to evaluate any outcomes and impacts that the project may have achieved, evaluators should remember that the project's performance should be assessed by considering the difference between the answers to two simple questions "***what happened?***" and "***what would have happened anyway?***". These questions imply that there should be consideration of the baseline conditions and trends in relation to the intended project outcomes and impacts. In addition it implies that there should be plausible evidence to **attribute** such outcomes and impacts **to the actions of the project**.

Sometimes, adequate information on baseline conditions and trends is lacking. In such cases this should be clearly highlighted by the evaluator, along with any simplifying assumptions that were taken to enable the evaluator to make informed judgements about project performance.

3. Project Evaluation Parameters and Ratings

The success of project implementation will be rated on a scale from 'highly unsatisfactory' to 'highly satisfactory'. In particular the evaluation shall **assess and rate** the project with respect to the **eleven categories (A-K)³** defined below.

It should be noted that many of the evaluation parameters are interrelated. For example, the 'achievement of objectives and planned results' is closely linked to the issue of 'sustainability'. Sustainability is understood as the probability of continued long-term project-derived outcomes and impacts and is, in turn, linked to the issues of 'catalytic effects/ replication' and, often, 'country ownership' and 'stakeholder participation'.

The ***ratings for the parameters A-K will be presented in the form of a table (see Annex 1)***. Each of the eleven categories should be rated separately with **brief justifications** based on the findings of the main analysis. An overall rating for the project should also be given. The following rating system is to be applied:

HS	= Highly Satisfactory
S	= Satisfactory
MS	= Moderately Satisfactory
MU	= Moderately Unsatisfactory
U	= Unsatisfactory

² Evaluators should make a brief courtesy call to GEF Country Focal points during field visits if at all possible.

³ However, the views and comments expressed by the evaluator need not be restricted to these items.

HU = Highly Unsatisfactory

A. Attainment of Objectives and Planned Results:

The evaluation should assess the extent to which the project's major relevant objectives were effectively and efficiently achieved or are expected to be achieved and their relevance.

- *Effectiveness:* Evaluate the **overall likelihood of impact achievement**, taking into account the “achievement indicators”, the achievement of outcomes and the progress made towards impacts. UNEP’s Evaluation Office advocates the use of the **Review of Outcomes to Impacts (ROtI)** method (described in Annex 6) to establish this rating.
- *Relevance:* In retrospect, were the project’s outcomes consistent with the focal areas/ operational program strategies? Ascertain the nature and significance of the contribution of the project outcomes to the CBD and the wider portfolio of the GEF.
- *Efficiency:* Was the project cost effective? Was the project the least cost option? Was the project implementation delayed and if it was, then did that affect cost-effectiveness? Assess the contribution of cash and in-kind co-financing, and any additional resources leveraged by the project, to the project’s achievements. Did the project build on earlier initiatives; did it make effective use of available scientific and/ or technical information? Wherever possible, the evaluator should also compare the cost-time vs. outcomes relationship of the project with that of other similar projects.

B. Sustainability:

Sustainability is understood as the probability of continued long-term project-derived outcomes and impacts after the GEF project funding ends. The evaluation will identify and assess the key conditions or factors that are likely to contribute or undermine the persistence of benefits after the project ends. Some of these factors might be outcomes of the project, e.g. stronger institutional capacities or better informed decision-making. Other factors will include contextual circumstances or developments that are not outcomes of the project but that are relevant to the sustainability of outcomes. The evaluation should ascertain to what extent follow-up work has been initiated and how project outcomes will be sustained and enhanced over time. **Application of the ROtI method** described in Annex 6 will also assist in the evaluation of sustainability.

Four aspects of sustainability should be addressed: financial, socio-political, institutional frameworks, and environmental (if applicable). The following questions provide guidance on the assessment of these aspects:

- *Financial resources.* Are there any financial risks that may jeopardize sustenance of project outcomes and onward progress towards impact? What is the likelihood that financial and economic resources will not be available once the GEF assistance ends (resources can be from multiple sources, such as the public and private sectors, income generating activities, and trends that may indicate that it is likely that in future there will be adequate financial resources for sustaining project’s outcomes)? To what extent are the outcomes and eventual impact of the project dependent on continued financial support?

- *Socio-political.* Are there any social or political risks that may jeopardize sustenance of project outcomes and onward progress towards impacts? What is the risk that the level of stakeholder ownership will be insufficient to allow for the project outcomes to be sustained? Do the various key stakeholders see that it is in their interest that the project benefits continue to flow? Is there sufficient public/ stakeholder awareness in support of the long term objectives of the project?
- *Institutional framework.* To what extent is the sustenance of the outcomes and onward progress towards impacts dependent on issues relating to institutional frameworks and governance? What is the likelihood that institutional and technical achievements, legal frameworks, policies and governance structures and processes will allow for, the project outcomes/ benefits to be sustained? While responding to these questions consider if the required systems for accountability and transparency and the required technical know-how are in place.
- *Environmental.* Are there any environmental risks that can undermine the future flow of project environmental benefits? The TE should assess whether certain activities in the project area will pose a threat to the sustainability of the project outcomes. For example; construction of dam in a protected area could inundate a sizable area and thereby neutralize the biodiversity-related gains made by the project; or, a newly established pulp mill might jeopardise the viability of nearby protected forest areas by increasing logging pressures; or a vector control intervention may be made less effective by changes in climate and consequent alterations to the incidence and distribution of malarial mosquitoes. Would these risks apply in other contexts where the project may be replicated?

C. Catalytic Role and Replication:

The catalytic role of the GEF is embodied in its approach of supporting the creation of an enabling environment, investing in activities which are innovative and showing how new approaches and market changes can work. GEF aims to support activities that upscale new approaches to a national (or regional) level to sustainably achieve global environmental benefits.

In general this catalytic approach can be separated into three broad categories of GEF activities: (1) “**foundational**” and enabling activities, focusing on policy, regulatory frameworks, and national priority setting and relevant capacity (2) **demonstration** activities, which focus on demonstration, capacity development, innovation, and market barrier removal; and (3) **investment** activities, full-size projects with high rates of co-funding, catalyzing investments or implementing a new strategic approach at the national level.

In this context the evaluation should assess the catalytic role played by this project by

The three categories approach combines all the elements that have been shown to catalyze results in international cooperation. Evaluations in the bilateral and multilateral aid community have shown time and again that activities at the micro level of skills transfer—piloting new technologies and demonstrating new approaches—will fail if these activities are not supported at the institutional or market level as well. Evaluations have also consistently shown that institutional capacity development or market interventions on a larger scale will fail if governmental laws, regulatory frameworks, and policies are not in place to support and sustain these improvements. And they show that demonstration, innovation and market barrier removal do not work if there is no follow up through investment or scaling up of financial means.

consideration of the following questions:

- INCENTIVES: To what extent have the project activities provided incentives (socio-economic/ market based) to contribute to catalyzing changes in stakeholder behaviour?
- INSTITUTIONAL CHANGE: To what extent have the project activities contributed to changing institutional behaviours?
- POLICY CHANGE: To what extent have project activities contributed to policy changes (and implementation of policy)?
- CATALYTIC FINANCING: To what extent did the project contribute to sustained follow-on financing from Government and/ or other donors? (This is different from co-financing.)
- PROJECT CHAMPIONS: To what extent have changes (listed above) been catalyzed by particular individuals or institutions (without which the project would not have achieved results)?

(Note: the **ROtI analysis** should contribute useful information to address these questions)

Replication approach, in the context of GEF projects, is defined as lessons and experiences coming out of the project that are replicated or scaled up in the design and implementation of other projects. Replication can have two aspects: *replication proper* (lessons and experiences are replicated in different geographic area) or *scaling up* (lessons and experiences are replicated within the same geographic area but funded by other sources).

Is the project suitable for replication? If so, has the project approach been replicated? If no effects are identified, the evaluation will describe the strategy/ approach adopted by the project to promote replication effects.

D. Stakeholder Participation/ Public Awareness:

This consists of three related and often overlapping processes: (1) information dissemination, (2) consultation, and (3) “stakeholder” participation. Stakeholders are the individuals, groups, institutions, or other bodies that have an interest or stake in the outcome of the GEF- financed project. The term also applies to those potentially adversely affected by a project. Note: the RoTI analysis should assist the evaluator in identifying the key stakeholders in each step of the causal pathway from activities to objectives. The evaluation will specifically:

- Assess the mechanisms put in place by the project for identification and engagement of stakeholders in each participating country and establish, in consultation with the stakeholders, whether this mechanism was successful, and identify its strengths and weaknesses with respect to the achievement of the intended outcomes and objective of the project..
- Assess the degree and effectiveness of collaboration/ interactions between the various project partners and institutions during the course of implementation of the project.
- Assess the degree and effectiveness of any various public awareness activities that were undertaken during the course of implementation of the project.

E. Country Ownership/ Drivenness:

This is the relevance of the project to national development and environmental agendas, recipient country commitment, and regional and international agreements. The evaluation will:

- Assess the level of country ownership. Specifically, the evaluator should assess whether the project was effective in providing and communicating information on use of crop genetic diversity to minimize pest and disease damage on-farm and catalyzed action in participating countries to improve decisions relating to the conservation and management of crop genetic diversity in each country.
- Assess the level of country commitment to the generation and use of research related to use of crop genetic diversity to minimize pest and disease damage on-farm during and after the project, including in regional and international fora.

F. Achievement of Outputs and Activities:

- Delivered outputs: Assessment of the project's success in producing each of the programmed outputs, both in **quantity and quality** as well as **usefulness and timeliness**.
- Assess the soundness and effectiveness of the methodologies used for developing criteria and tools to determine when and where intra-specific genetic diversity can provide an effective management approach for limiting crop damage caused by pests and diseases in the participating countries
- Assess to what extent the project outputs produced have the weight of scientific authority/ credibility, necessary to influence policy and decision-makers, to take actions, particularly at the national level, that support the adoption of genetic diversity rich methods for limiting damage caused by pests and diseases.
- Assess to what extent the project outputs enhanced capacity of farmers and other stakeholders to use local crop genetic diversity to manage pest and pathogen pressures.

G. Preparation and Readiness:

Were the project's objectives and components clear, practicable and feasible within its timeframe? Were the capacities of executing institution and counterparts properly considered when the project was designed? Were lessons from other relevant projects properly incorporated in the project design? Were the partnership arrangements properly identified and the roles and responsibilities negotiated prior to project implementation? Were counterpart resources (funding, staff, and facilities), enabling legislation, and adequate project management arrangements in place?

H. Implementation Approach and Adaptive Management:

This includes an analysis of the project's management framework, adaptation to changing conditions (adaptive management), partnerships in implementation arrangements, changes in project design, and overall project management. The evaluation will:

- Ascertain to what extent the project implementation mechanisms outlined in the project document have been closely followed and whether the project document was clear and realistic to enable effective and efficient implementation.
- Assess the role of the various committees established and the project execution arrangements at all levels policy decisions: (1) Steering Group; (2) day to day project management in each of the country Executing Agencies.
- Assess the extent to which the project responded to the mid-term review.
- Evaluate the effectiveness and efficiency and adaptability of project management and how well the management was able to adapt to changes during the life of the project.
- Identify administrative, operational and/ or technical problems and constraints that influenced the effective implementation of the project.

I. Monitoring and Evaluation:

The evaluation shall include an assessment of the quality, application and effectiveness of project monitoring and evaluation plans and tools, including an assessment of risk management based on the assumptions and risks identified in the project document. The Terminal Evaluation will assess whether the project met the minimum requirements for ‘project design of M&E’ and ‘the application of the Project M&E plan’ (see minimum requirements 1&2 in Annex 4). GEF projects must budget adequately for execution of the M&E plan, and provide adequate resources during implementation of the M&E plan. Project managers are also expected to use the information generated by the M&E system during project implementation to adapt and improve the project.

M&E during project implementation

(1) M&E Design. Projects should have sound M&E plans to monitor results and track progress towards achieving project objectives. An M&E plan should include a baseline (including data, methodology, etc.), SMART indicators (see Annex 4) and data analysis systems, and evaluation studies at specific times to assess results. The time frame for various M&E activities and standards for outputs should have been specified.

The evaluator should use the following questions to help assess the M&E design aspects:

SMART-ness of Indicators

- Are there specific indicators in the logical framework for each of the project objectives and outcomes?
- Are the indicators relevant to the objectives and outcomes?
- Are the indicators for the objectives and outcomes sufficient?
- Are the indicators quantifiable?

Adequacy of Baseline Information

- Is there baseline information?
- Has the methodology for the baseline data collection been explained?
- Is desired level of achievement for indicators based on a reasoned estimate of baseline?

Arrangements for Monitoring of Implementation

- Has a budget been allocated for M&E activities?
- Have the responsibility centers for M&E activities been clearly defined?
- Has the time frame for M&E activities been specified?

Arrangements for Evaluation

- Have specific targets been specified for project outputs?
- Has the desired level of achievement been specified for all Indicators of Objectives and Outcomes?

(2) **M&E Plan Implementation.** A Terminal Evaluation should verify that:

- An M&E system was in place and facilitated timely tracking of results and progress towards projects objectives throughout the project implementation period (perhaps through use of a logical framework or similar);
- Annual project reports and Progress Implementation Review (PIR) reports were complete, accurate and with well justified ratings;
- That the information provided by the M&E system was used during the project to improve project performance and to adapt to changing needs;
- And that projects had an M&E system in place with proper training for parties responsible for M&E activities.

(3) **Budgeting and Funding for M&E Activities.** The Terminal Evaluation should determine whether support for M&E was budgeted adequately and was funded in a timely fashion during implementation.

J. Financial Planning and Control:

Evaluation of financial planning requires assessment of the quality and effectiveness of financial planning and control of financial resources throughout the project's lifetime. Evaluation includes actual project costs by activities compared to budget (variances), financial management (including disbursement issues), and co-financing. The evaluation should:

- Assess the strength and utility of financial controls, including reporting, and planning to allow the project management to make informed decisions regarding the budget and allow for a proper and timely flow of funds for the payment of satisfactory project deliverables.
- Present the major findings from the financial audit if one has been conducted.
- Identify and verify the sources of co-financing as well as leveraged and associated financing (in co-operation with the IA and EA).
- Assess whether the project has applied appropriate standards of due diligence in the management of funds and financial audits.
- The evaluation should also include a breakdown of final actual costs and co-financing for the project prepared in consultation with the relevant UNEP Fund Management Officer of the project (table attached in Annex 2 “Co-financing and leveraged resources”).

K. UNEP Supervision and Backstopping:

The purpose of supervision is to work with the Executing Agency in identifying and dealing with problems which arise during implementation of the project itself. Such problems may be related to project management but may also involve technical/

substantive issues in which UNEP has a major contribution to make. The evaluator should assess the effectiveness of supervision and administrative and financial support provided by UNEP/DGEF including:

- (i) The adequacy of project supervision plans, inputs and processes;
- (ii) The emphasis given to outcome monitoring (results-based project management);
- (iii) The realism/ candor of project reporting and rating (i.e. are PIR ratings an accurate reflection of the project realities and risks);
- (iv) The quality of documentation of project supervision activities; and
- (v) Financial, administrative and other fiduciary aspects of project implementation supervision.

In summary, accountability and implementation support through technical assistance and problem solving are the main elements of project supervision (Annex 5).

L. Complementarity with UNEP Medium Term Strategy and Programme of Work:

UNEP aims to undertake GEF funded projects that are aligned with its strategy. Whilst it is recognised that UNEP GEF projects designed prior to the production of the UNEP Medium Term Strategy (MTS)⁴/ Programme of Work (POW) 2010/11 would not necessarily be aligned with the Expected Accomplishments articulated in those documents, complementarity may exist nevertheless. For this reason, the complementarity of GEF projects with UNEP's MTS/ POW will not be formally rated, however, the evaluation should present a brief narrative to cover the following issues:

Linkage to UNEP's Expected Accomplishments The UNEP Medium Term Strategy specifies desired results in six thematic focal areas. The desired results are termed Expected Accomplishments. Using the completed **ROtI analysis**, the evaluation should comment on whether the project makes a tangible contribution to any of the Expected Accomplishments specified in the UNEP MTS. The magnitude and extent any contributions and the causal linkages should be fully described.

Project contributions that are in-line with the Bali Strategic Plan (BSP)⁵. The outcomes and achievements of the project should be briefly discussed in relation to the objectives of the UNEP BSP.

South-South Cooperation is regarded as the exchange of resources, technology, and knowledge between developing countries. Briefly describe any aspects of the project that could be considered as examples of South-South Cooperation.

4. Evaluation Report Format and Review Procedures

The report should be brief, to the point and easy to understand. It must explain; the purpose of the evaluation, exactly what was evaluated and the methods used. The report must highlight any methodological limitations, identify key concerns and present evidence-based findings, consequent conclusions, recommendations and lessons. The report should be presented in a way that makes the information accessible and comprehensible and include an executive summary that encapsulates the essence of the information contained in the report to facilitate dissemination and distillation of lessons.

⁴ <http://www.unep.org/PDF/FinalMTSGCSS-X-8.pdf>

⁵ <http://www.unep.org/GC/GC23/documents/GC23-6-add-1.pdf>

The evaluation will rate the overall implementation success of the project and provide individual ratings of the eleven implementation aspects as described in Chapter 3 of this TOR. **The ratings will be presented in the format of a table (Annex 1) with brief justifications based on the findings of the main analysis.**

Evidence, findings, conclusions and recommendations should be presented in a complete and balanced manner. Any dissident views in response to evaluation findings will be appended in an annex. The evaluation report shall be written in English, be of no more than 50 pages (excluding annexes), use numbered paragraphs and include:

- i) **A Project Identification Table:** Identify: (1) Project ID, (2) Title, (3) Location, (4) Start and End Date, (5) Mid-Term Evaluation (if applicable), (6) Executing and Implementing Agencies, Partners, (7) and Budget.
- ii) **An Executive Summary** (no more than 3 pages) providing a brief overview of the main conclusions and recommendations of the evaluation;
- iii) **Introduction and Background** giving a brief overview of the evaluated project, for example, the objective and status of activities; The GEF Monitoring and Evaluation Policy, 2006, requires that a TE report will provide summary information on when the evaluation took place; places visited; who was involved; the key questions; and, the methodology;
- iv) **Scope, Objective and Methods** presenting the evaluation's purpose, the evaluation criteria used and questions to be addressed;
- v) **Project Performance and Impact** providing *factual evidence* relevant to the questions asked by the evaluator and interpretations of such evidence. This is the main substantive section of the report. The evaluator should provide a commentary and analysis on all eleven evaluation aspects (A – L above);
- vi) **Conclusions and Rating** of project implementation success giving the evaluator's concluding assessments and ratings of the project against given evaluation criteria and standards of performance. The conclusions should provide answers to questions about whether the project is considered good or bad, and whether the results are considered positive or negative. The ratings should be provided with a brief narrative comment in a table (see Annex 1);
- vii) **Lessons (to be) Learned** presenting general conclusions from the standpoint of the design and implementation of the project, based on good practices and successes or problems and mistakes. Lessons should have the potential for wider application and use. All lessons should 'stand alone' and should:
 - Briefly describe the context from which they are derived;
 - State or imply some prescriptive action;
 - Specify the contexts in which they may be applied (if possible, who when and where).
- viii) **Recommendations** suggesting *actionable* proposals for improvement of the current project. In general, Terminal Evaluations are likely to have very few (perhaps two or three) actionable recommendations.

Prior to each recommendation, the issue(s) or problem(s) to be addressed by the recommendation should be clearly stated.

A high **quality recommendation** is an actionable proposal that is:

1. Feasible to implement within the timeframe and resources available;
2. Commensurate with the available capacities of project team and partners;

- 3. Specific in terms of who would do what and when;
 - 4. Contains results-based language (i.e. a measurable performance target);
 - 5. Includes a trade-off analysis, when its implementation may require utilizing significant resources that would otherwise be used for other project purposes.
- ix) **Annexes** may include additional material deemed relevant by the evaluator but must include:
1. The Evaluation Terms of Reference (**TOR**),
 2. A **list of interviewees**, and evaluation timeline,
 3. A **list of documents** reviewed/ consulted,
 4. Summary **co-finance information** and a **statement of project expenditure by activity**,
 5. Details of the project's 'impact pathways' and the '**ROtI**' **analysis**,
 6. The expertise of the evaluation team (**brief CV**).

TE reports will also include any formal response/ comments from the project management team and/ or the country focal point regarding the evaluation findings or conclusions as an annex to the report, however, such will be appended to the report by UNEP Evaluation Office.

Examples of UNEP GEF Terminal Evaluation Reports are available at www.unep.org/eou.

Review of the Draft Evaluation Report

Draft reports shall be submitted to the Chief of Evaluation. The Chief of Evaluation will share the report with the corresponding Programme or Project Officer and his or her supervisor for initial review and consultation. The DGEF staff and senior Executing Agency staff are allowed to comment on the draft evaluation report. They may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions. Where, possible, a consultation is held between the evaluator, Evaluation Office Staff, the Task Manager and key members of the project execution team. The consultation seeks feedback on the proposed recommendations and lessons. UNEP Evaluation Office collates all review comments and provides them to the evaluator(s) for their consideration in preparing the final version of the report.

5. Submission of Final Terminal Evaluation Reports.

The final report shall be submitted in electronic form in MS Word format and should be sent directly to:

Segbedzi Norgbey, Chief,
 UNEP Evaluation Office
 P.O. Box 30552-00100
 Nairobi, Kenya
 Tel.: (+254-20) 762 3387
 Fax: (+254-20) 762 3158
 Email: segbedzi.norgbey@unep.org

The Chief of Evaluation will share the report with the following individuals:

Maryam Niamir-Fuller, Director
 UNEP/Division of GEF Coordination (DGEF)
 P.O. Box 30552-00100
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 Tel: (+254-20) 762 4686
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Marieta Sakalian,(Task Manager)
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E-mail 2: Marieta.Sakalian@fao.org

The final Terminal Evaluation will also be copied to the following GEF Operational Focal Points.

Ms. Huang WENHANG
(Operational Focal Point) since January 11, 2010
Deputy Director
Ministry of Finance
IFI Division III International Department No. 3 San Li He Nan Road Xicheng District
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H.E. Marcela AGUINAGA
(Operational Focal Point) since February 08, 2007
Minister
Ministry of Environment
Av. Amazonas y Eloy Alfaro, EFI. MAGAP Piso 7
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Mr. Mohamed BENYAHIA
(Operational Focal Point) since September 16, 2008
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Ministry of Energy Mining, Water & Environment
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Mr. Arief YUWONO

(Operational Focal Point) since December 14, 2009

Executive Secretary

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ambar@menlh.go.id

Mr. Keith MUHAKANIZI

(Political/Operational Focal Point) since March 09, 2005

Deputy Secretary to the Treasury

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The final Terminal Evaluation report will be published on the Evaluation Office website www.unep.org/eou and may be printed in hard copy. Subsequently, the report will be sent to the GEF Office of Evaluation for their review, appraisal and inclusion on the GEF website.

6. Resources and Schedule of the Evaluation

This final evaluation will be undertaken by an international evaluator contracted by the UNEP Evaluation Office. The contract for the evaluator will begin on July 29th 2010 and end on 31st October 2010, (30 days spread over 13 weeks (13 days of travel, to Uganda and Ecuador and 17 days desk study). The evaluator will submit a draft report on October 11th 2010 to UNEP/EO, which will then share the report with the UNEP/DGEF Task Manager, and key representatives of the Executing Agencies. Any comments or responses to the draft report will be sent to UNEP/EO for collation and the consultant will be advised of any necessary revisions. Comments to the final draft report will be sent to the consultant by October 25th 2010 after which, the consultant will submit the final report no later than 31st October 2010.

The evaluator will after an initial telephone briefing with the staff of the UNEP Evaluation Office and UNEP/GEF Task Manager conduct initial desk review work and later travel to Uganda during the International Steering Committee (ISC) meeting to meet with all partner countries ISC members and project coordinators and meet with the national project staff at the beginning of the evaluation. Furthermore, the evaluator is expected to travel to Ecuador and meet with representatives of the national project Executing Agency, national project partners to evaluate the Ecuador project component. The evaluator will also conduct telephone interview with key representatives of Diversity International, the global project executing agencies.

In accordance with the evaluation policies of UNEP and the GEF, all GEF projects are evaluated by independently contracted evaluators. The evaluator should have the following qualifications:

The evaluator should not have been associated with the design and implementation of the project in a paid capacity. The evaluator will work under the overall supervision of the Chief, Evaluation Office, UNEP. The evaluator should be an international expert in biodiversity management and conservation with a sound understanding of biodiversity issues. The consultant should have the following minimum qualifications: (i) experience in agricultural biodiversity issues; (ii) experience with management and implementation of research projects and in particular with research targeted at plant genetic resources; (iii) experience with project evaluation. Knowledge of UNEP programmes and GEF activities is desirable. Knowledge of Spanish, French and/or Chinese is an advantage. Fluency in oral and written English is a must.

7. Schedule Of Payment

The consultant shall select one of the following two contract options:

Lump-Sum Option

The evaluator will receive an initial payment of 30% of the total amount due upon signature of the contract. A further 30% will be paid upon acceptance of the draft report. A final payment of 40% will be made upon satisfactory completion of work. The fee is payable under the individual Special Service Agreement (SSA) of the evaluator and is **inclusive** of all expenses such as travel, accommodation and incidental expenses.

Fee-only Option

The evaluator will receive an initial payment of 40% of the total amount due upon signature of the contract. Final payment of 60% will be made upon satisfactory completion of work. The fee is payable under the individual SSAs of the evaluator and is **NOT** inclusive of all expenses such as travel, accommodation and incidental expenses. Ticket and DSA will be paid separately.

In case, the evaluator cannot provide the products in accordance with the TOR, the timeframe agreed, or his products are substandard, the payment to the evaluator could be withheld, until such a time the products are modified to meet UNEP's standard. In case the evaluator fails to submit a satisfactory final product to UNEP, the product prepared by the evaluator may not constitute the evaluation report.

ANNEX 1. OVERALL RATINGS TABLE

Criterion	Evaluator's Summary Comments	Evaluator's Rating
A. Attainment of Project Objectives and Results (overall rating) Sub criteria (below)		
A. 1. Effectiveness - overall likelihood of impact achievement (ROtI rating)		
A. 2. Relevance		
A. 3. Efficiency		
B. Sustainability of Project Outcomes (overall rating) Sub criteria (below)		
B. 1. Financial		
B. 2. Socio Political		
B. 3. Institutional framework		
B. 4. Environmental		
C. Catalytic Role and Replication		
D. Stakeholder Participation/ Public Awareness		
E. Country Ownership/ Drivenness		
F. Achievement of Outputs and Activities		
G. Preparation and Readiness		
H. Implementation Approach and Adaptive Management		
I. Monitoring and Evaluation (overall rating) Sub criteria (below)		
I. 1. M&E Design		
I. 2. M&E Plan Implementation		
I. 3. Budgeting and Funding for M&E activities		
J. Financial Planning and Control		
K. UNEP Supervision and Backstopping		
Overall Rating		

RATING OF PROJECT OBJECTIVES AND RESULTS

Highly Satisfactory (HS): The project had no shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Satisfactory (S): The project had minor shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Moderately Satisfactory (MS): The project had moderate shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Moderately Unsatisfactory (MU): The project had significant shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Unsatisfactory (U) The project had major shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Highly Unsatisfactory (HU): The project had severe shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Please note: Relevance and effectiveness will be considered as critical criteria. The overall rating of the project for achievement of objectives and results **may not be higher** than the lowest rating on either of these two criteria. Thus, to have an overall satisfactory rating for outcomes a project must have at least satisfactory ratings on both relevance and effectiveness.

RATINGS ON SUSTAINABILITY

Sustainability will be understood as the probability of continued long-term outcomes and impacts after the GEF project funding ends. The Terminal Evaluation will identify and assess the key conditions or factors that are likely to contribute or undermine the persistence of benefits after the project ends. Some of these factors might be outcomes of the project, i.e. stronger institutional capacities, legal frameworks, socio-economic incentives/ or public awareness. Other factors will include contextual circumstances or developments that are not outcomes of the project but that are relevant to the sustainability of outcomes.

Rating system for Sustainability sub criteria

On each of the dimensions of sustainability of the project outcomes will be rated as follows.

Likely (L): There are no risks affecting this dimension of sustainability.

Moderately Likely (ML): There are moderate risks that affect this dimension of sustainability.

Moderately Unlikely (MU): There are significant risks that affect this dimension of sustainability

Unlikely (U): There are severe risks that affect this dimension of sustainability.

According to the GEF Office of Evaluation, all the risk dimensions of sustainability are deemed critical. Therefore, overall rating for sustainability will not be higher than the rating of the dimension with lowest ratings. For example, if a project has an “Unlikely” rating in any of the dimensions then its overall rating **cannot be higher** than “Unlikely”, regardless of whether higher ratings in other dimensions of sustainability produce a higher average.

RATINGS OF PROJECT M&E

Monitoring is a continuing function that uses systematic collection of data on specified indicators to provide management and the main stakeholders of an ongoing project with indications of the extent of progress and achievement of objectives and progress in the use of allocated funds. Evaluation is the systematic and objective assessment of an on-going or completed project, its design, implementation and results. Project evaluation may involve the definition of appropriate standards, the examination of performance against those standards, and an assessment of actual and expected results.

The Project monitoring and evaluation system will be rated on “M&E Design”, “M&E Plan Implementation” and “Budgeting and Funding for M&E activities” as follows:

Highly Satisfactory (HS): There were no shortcomings in the project M&E system.

Satisfactory(S): There were minor shortcomings in the project M&E system.

Moderately Satisfactory (MS): There were moderate shortcomings in the project M&E system.

Moderately Unsatisfactory (MU): There were significant shortcomings in the project M&E system.

Unsatisfactory (U): There were major shortcomings in the project M&E system.

Highly Unsatisfactory (HU): The Project had no M&E system.

“M&E Plan Implementation” will be considered a critical parameter for the overall assessment of the M&E system. The overall rating for the M&E systems will **not be higher** than the rating on “M&E plan implementation.”

ALL OTHER RATING

All other ratings will be on the GEF six point scales.

GEF Performance Description	
HS	= Highly Satisfactory
S	= Satisfactory
MS	= Moderately Satisfactory
MU	= Moderately Unsatisfactory
U	= Unsatisfactory
HU	= Highly Unsatisfactory

ANNEX 2. CO-FINANCING AND LEVERAGED RESOURCES

Co-financing (basic data to be supplied to the consultant for verification)

Co-financing (Type/Source)	IA own Financing (mill US\$)		Government (mill US\$)		Other*		Total (mill US\$)		Total Disbursement (mill US\$)	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
- Grants										
- Loans/Concessional (compared to market rate)										
- Credits										
- Equity investments										
- In-kind support										
- Other (*)										
Totals										

* Other is referred to contributions mobilized for the project from other multilateral agencies, bilateral development cooperation agencies, NGOs, the private sector and beneficiaries.

Leveraged Resources

Leveraged resources are additional resources—beyond those committed to the project itself at the time of approval—that are mobilized later as a direct result of the project. Leveraged resources can be financial or in-kind and they may be from other donors, NGO's, foundations, governments, communities or the private sector. Please briefly describe the resources the project has leveraged since inception and indicate how these resources are contributing to the project's ultimate objective.

Table showing final actual project expenditure by activity to be supplied by the UNEP Fund management Officer. (insert here)

ANNEX 3. REVIEW OF THE DRAFT REPORT

Draft reports submitted to the UNEP Evaluation Office are shared with the corresponding Programme or Project Officer and his or her supervisor for initial review and consultation. The DGEF staff and senior Executing Agency staff provide comments on the draft evaluation report. They may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions. The consultation also seeks agreement on the findings and recommendations. UNEP Evaluation Office collates the review comments and provides them to the evaluators for their consideration in preparing the final version of the report. General comments on the draft report with respect to compliance with these TOR are shared with the reviewer.

Quality Assessment of the Evaluation Report

All UNEP evaluation reports are subject to quality assessments by the Evaluation Office. These are used as a tool for providing structured feedback to the evaluator. The quality of the draft evaluation report is assessed and rated against the following criteria:

GEF Report Quality Criteria	UNEP EO Assessment	Rating
A. Did the report present an assessment of relevant outcomes and achievement of project objectives in the context of the focal area program indicators if applicable?		
B. Was the report consistent and the evidence complete and convincing and were the ratings substantiated when used?		
C. Did the report present a sound assessment of sustainability of outcomes?		
D. Were the lessons and recommendations supported by the evidence presented?		
E. Did the report include the actual project costs (total and per activity) and actual co-financing used?		
F. Did the report include an assessment of the quality of the project M&E system and its use for project management?		
UNEP additional Report Quality Criteria	UNEP EO Assessment	Rating
G. Quality of the lessons: Were lessons readily applicable in other contexts? Did they suggest prescriptive action?		
H. Quality of the recommendations: Did recommendations specify the actions necessary to correct existing conditions or improve operations ('who?' 'what?' 'where?' 'when?'). Can they be implemented? Did the recommendations specify a goal and an associated performance indicator?		
I. Was the report well written? (clear English language and grammar)		
J. Did the report structure follow EOU guidelines, were all requested Annexes included?		
K. Were all evaluation aspects specified in the TORs adequately addressed?		
L. Was the report delivered in a timely manner		

$$\text{Quality} = (2*(0.3*(A + B) + 0.1*(C+D+E+F))+ 0.3*(G + H) + 0.1*(I+J+K+L))/3$$

The Totals are rounded and converted to the scale of HS to HU

Rating system for quality of Terminal Evaluation reports:

A number rating 1-6 is used for each criterion: Highly Satisfactory = 6, Satisfactory = 5, Moderately Satisfactory = 4, Moderately Unsatisfactory = 3, Unsatisfactory = 2, Highly Unsatisfactory = 1, and unable to assess = 0.

ANNEX 4: MINIMUM REQUIREMENTS FOR M&E

Minimum Requirement 1: Project Design of M&E⁶

All projects must include a concrete and fully budgeted monitoring and evaluation plan by the time of Work Program entry (full-sized projects) or CEO approval (medium-sized projects). This plan must contain at a minimum:

- SMART (see below) indicators for project implementation, or, if no indicators are identified, an alternative plan for monitoring that will deliver reliable and valid information to management
- SMART indicators for results (outcomes and, if applicable, impacts), and, where appropriate, corporate-level indicators
- A project baseline, with:
 - a description of the problem to address
 - indicator data
 - or, if major baseline indicators are not identified, an alternative plan for addressing this within one year of implementation
- An M&E Plan with identification of reviews and evaluations which will be undertaken, such as mid-term reviews or evaluations of activities
- An organizational setup and budgets for monitoring and evaluation.

Minimum Requirement 2: Application of Project M&E

- Project monitoring and supervision will include implementation of the M&E plan, comprising:
- Use of SMART indicators for implementation (or provision of a reasonable explanation if not used)
- Use of SMART indicators for results (or provision of a reasonable explanation if not used)
- Fully established baseline for the project and data compiled to review progress
- Evaluations are undertaken as planned

⁶

<http://gefweb.org/MonitoringandEvaluation/MEPoliciesProcedures/MEPTools/mepstandards.html>

- Operational organizational setup for M&E and budgets spent as planned.

SMART INDICATORS GEF projects and programs should monitor using relevant performance indicators. The monitoring system should be “SMART”:

1. **Specific:** The system captures the essence of the desired result by clearly and directly relating to achieving an objective, and only that objective.
2. **Measurable:** The monitoring system and its indicators are unambiguously specified so that all parties agree on what the system covers and there are practical ways to measure the indicators and results.
3. **Achievable and Attributable:** The system identifies what changes are anticipated as a result of the intervention and whether the result(s) are realistic. Attribution requires that changes in the targeted developmental issue can be linked to the intervention.
4. **Relevant and Realistic:** The system establishes levels of performance that are likely to be achieved in a practical manner, and that reflect the expectations of stakeholders.
5. **Time-bound, Timely, Trackable, and Targeted:** The system allows progress to be tracked in a cost-effective manner at desired frequency for a set period, with clear identification of the particular stakeholder group to be impacted by the project or program.

M&E during Project implementation

- *M&E design.* Projects should have sound M&E plans to monitor results and track progress towards achieving Project objectives. An M&E plan should include a baseline (including data, methodology, etc.), SMART indicators and data analysis systems, and evaluation studies at specific times to assess results. The time frame for various M&E activities and standards for outputs should have been specified.

The Consultant(s) should use the following questions to help assess the M&E design aspects:

SMART-ness of Indicators

- Are there specific indicators in the log frame for each of the Project objectives and outcomes?
- Are the indicators relevant to the objectives and outcomes?
- Are the indicators for the objectives and outcomes sufficient?
- Are the indicators quantifiable?

Adequacy of Baseline Information

- Is there baseline information?

- Has the methodology for the baseline data collection been explained?
- Is desired level of achievement for indicators based on a reasoned estimate of baseline?

Arrangements for Monitoring of Implementation

- Has a budget been allocated for M&E activities?
- Have the responsibility centers for M&E activities been clearly defined?
- Has the time frame for M&E activities been specified?

Arrangements for Evaluation

- Have specific targets been specified for Project outputs?
- Has the desired level of achievement been specified for all Indicators of Objectives and Outcomes?

- *M&E plan implementation.* MTE should verify that:
 - an M&E system is in place and facilitating timely tracking of results and progress towards Projects objectives throughout the Project implementation period (perhaps through use of a logframe or similar);
 - annual Project reports and Progress Implementation Review (PIR) reports are complete, accurate and with well justified ratings;
 - that the information provided by the M&E system is used during the Project to improve Project performance and to adapt to changing needs;
 - and that Projects has an M&E system in place with proper training for parties responsible for M&E activities.
- *Budgeting and Funding for M&E activities.* The MTE should determine whether support for M&E was budgeted adequately and was funded in a timely fashion during implementation.

ANNEX 5: EXPECTATIONS REGARDING THE ROLE OF THE DGEF TASK MANAGERS IN GEF PROJECT SUPERVISION AND A LIST OF DOCUMENTATION RELEVANT FOR THE EVALUATION OF PROJECT SUPERVISION (provided to Evaluator by DGEF)

Project start up phase

- Pink File preparation and signature (including detailed project supervision plan)
- Co-financing arrangements
- Bank account opened and/or information provided
- Initial cash advance
- Supervision of recruitment of project staff
- Office set up (office space, procurement of equipment, host agreements)
- Establishment of project steering committee and any other advisory/governing structures.

Inception mission and workshop

- Preparation
- Review of institutional arrangements and project implementation responsibilities
- Workshop including providing training (important to discuss at inception how project will be evaluated at exit)
- First Steering Committee meeting
- Revised project implementation, M&E or supervision plan as necessary.

Project implementation

- Project financial and substantive reporting (includes audited statements, inventories of non-expendable equipment)
- Active monitoring of progress in achieving outcomes
- Liaising with co-implementing agency if applicable
- Steering committee meeting preparation and attendance
- Field visits as relevant/required
- Risk monitoring (social and environmental safeguards)
- Preparation and coordination of MTR (or support to MTE)
- Adaptive management to respond to risk and problems (includes follow up to MTR/MTE recommendations, and risk mitigation plan if applicable)
- Revisions
- Other technical assistance (e.g., output review, support to communications efforts)
- Database maintenance
- Knowledge management.

Project completion

- Review/clearance of outputs
- Clearance of terminal report and review of audited financial statement
- Completion revision

- Request for disposal of equipment
- Support to Evaluation Office for Terminal Evaluation (review of draft evaluation TOR, project information, comments to draft TE, completion of management response / implementation plan, follow up on recommendations [if any])
- Knowledge management.

Documents to inform evaluation of project supervision

- Project supervision plan, with associated budget
- Correspondence related to project
- Supervision mission reports
- Steering Committee meeting documents, including agendas, meeting minutes, and any summary reports
- Project progress reports, including financial reports submitted
- Cash advance requests documenting disbursements
- Annual Project Implementation Reports (PIRs)
- Mid-term Evaluation and associated action plans, (if any)
- Management memos related to project
- Other documentation of supervision feedback on project outputs and processes (e.g. comments on draft progress reports, etc.).

Possible additional documents:

Has a project extension occurred?

- Extension documentation.

Has a formal revision of project activities or objectives occurred? (Beyond modifications to project plans based on normal adaptive management procedures)

- Project revision documentation.

Has a formal budget revision occurred?

- Budget revision documentation.

ANNEX 6: INTRODUCTION TO THE THEORY OF CHANGE/ IMPACT PATHWAYS, THE ROTI METHOD AND THE ROTI RESULTS SCORESHEET

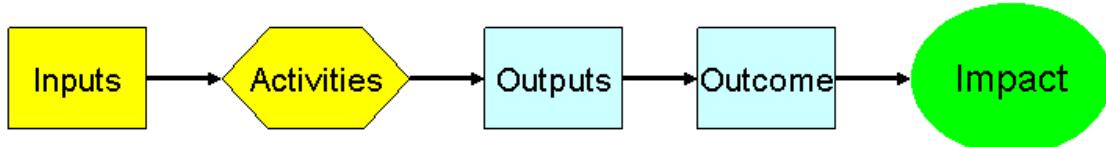
Terminal Evaluations of projects are conducted at, or shortly after, project completion. At this stage it is normally possible to assess the achievement of the project's outputs. However, the possibilities for evaluation of the project's outcomes are often more limited and the feasibility of assessing project **impacts** at this time is usually severely constrained. Full impacts often accrue only after considerable time-lags, and it is common for there to be a lack of long-term baseline and monitoring information to aid their evaluation. Consequently, substantial resources are often needed to support the extensive primary field data collection required for assessing impact and there are concomitant practical difficulties because project resources are seldom available to support the assessment of such impacts when they have accrued – often several years after completion of activities and closure of the project.

Despite these difficulties, it is possible to enhance the scope and depth of information available from Terminal Evaluations on the achievement of results **through rigorous review of project progress along the pathways from outcome to impact**. Such reviews identify the sequence of conditions and factors deemed necessary for project outcomes to yield impact and assess the current status of and future prospects for results. In evaluation literature these relationships can be variously described as 'Theories of Change', Impact 'Pathways', 'Results Chains', 'Intervention logic', and 'Causal Pathways' (to name only some!).

Theory of Change (TOC) / impact pathways

Figure 1 shows a generic impact pathway which links the standard elements of project logical frameworks in a graphical representation of causal linkages. When specified with more detail, for example including the key users of outputs, the processes (the arrows) that lead to outcomes and with details of performance indicators, analysis of impact pathways can be invaluable as a tool for both project planning and evaluation.

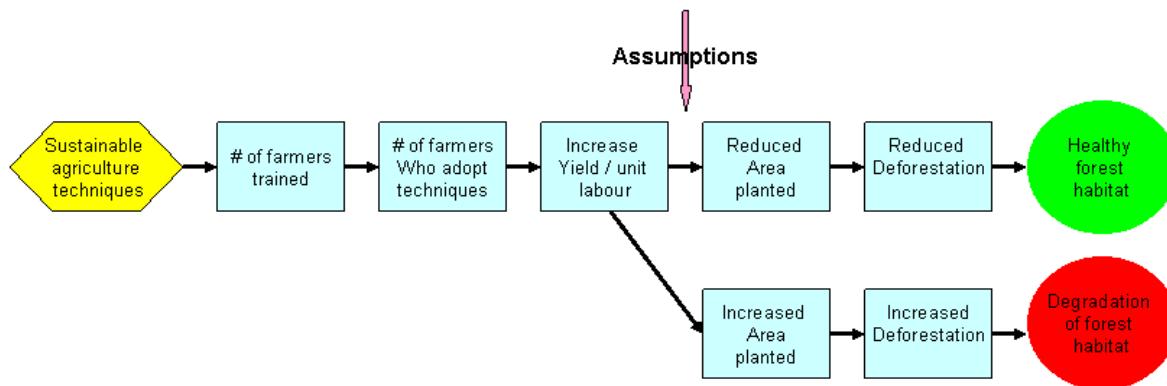
Figure 1. A generic results chain, which can also be termed an 'Impact Pathway' or Theory of Change.



The pathway summarizes causal relationships and help identify or clarify the assumptions in the intervention logic of the project. For example, in the Figure 2 below the eventual impact depends upon the behaviour of the farmers in using the new agricultural techniques they have learnt from the training. The project design for the intervention might be based on the upper pathway assuming that the farmers can now meet their needs from more efficient management of a given area therefore reducing the need for an

expansion of cultivated area and ultimately reducing pressure on nearby forest habitat, whereas the evidence gathered in the evaluation may in some locations follow the lower of the two pathways; the improved farming methods offer the possibility for increased profits and create an incentive for farmers to cultivate more land resulting in clearance or degradation of the nearby forest habitat.

Figure 2. An impact pathway / TOC for a training intervention intended to aid forest conservation.



The GEF Evaluation Office has recently developed an approach that builds on the concepts of theory of change / causal chains / impact pathways. The method is known as Review of Outcomes to Impacts (ROtI)⁷ and has three distinct stages:

- Identifying the project's intended impacts
- Review of the project's logical framework
- Analysis and modeling of the project's outcomes-impact pathways

The **identification of the projects intended impacts** should be possible from the ‘objectives’ statements specified in the official project document. The next stage is to **review the project’s logical framework** to assess whether the design of the project is consistent with, and appropriate for, the delivery of the intended impact. The method requires verification of the causal logic between the different hierarchical levels of the logical framework moving ‘backwards’ from impacts through outcomes to the outputs; the activities level is not formally considered in the ROtI method⁸. The aim of this stage is to develop and understanding of the causal logic of the project intervention and to identify the key ‘impact pathways’. In reality such process are often complex; they often

⁷ GEF Evaluation Office (2009). ROtI: Review of Outcomes to Impacts Practitioners Handbook. http://www.gefweb.org/uploadedFiles/Evaluation_Office/OPS4/Roti%20Practitioners%20Handbook%2015%20June%202009.pdf

⁸Evaluation of the efficiency and effectiveness in the use of resources to generate outputs is already a major focus within UNEP Terminal Evaluations.

involve multiple actors and decision-processes are subject to time-lags, meaning that project impact often accrue long after the completion of project activities.

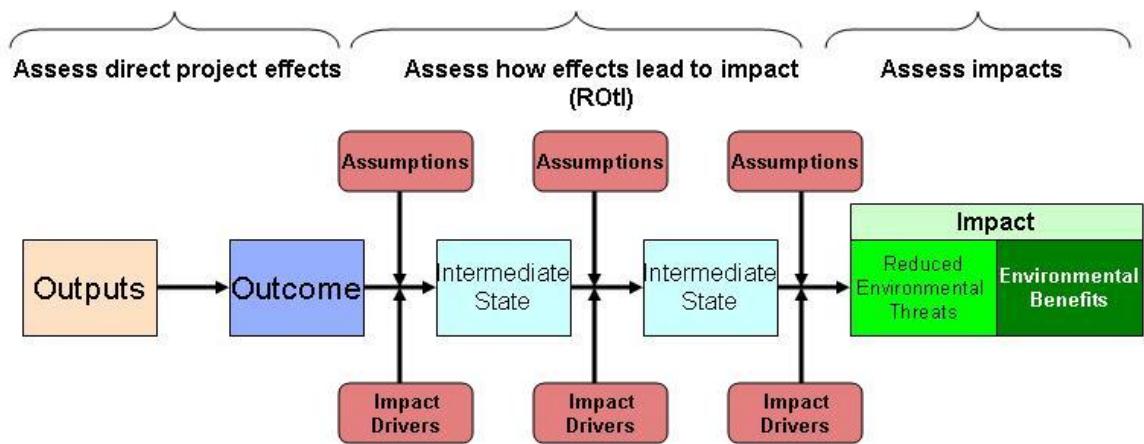
The third stage involves analysis of the ‘impact pathways’ that link project outcomes to impacts. The pathways are analysed in terms of the ‘**assumptions**’ and ‘**impact drivers**’ that underpin the processes involved in the transformation of outcomes to impacts via **intermediate states** (see Figure 3). Project outcomes are the direct intended results stemming from the outputs, and they are likely to occur either towards the end of the project or in the short term following project completion. **Intermediate states** are the transitional conditions between the project’s immediate outcomes and the intended impact. They are necessary conditions for the achievement of the intended impacts and there may be more than one intermediate state between the immediate project outcome and the eventual impact.

Impact drivers are defined as the significant factors that if present are expected to contribute to the realization of the intended impacts and **can be influenced** by the project / project partners & stakeholders. **Assumptions** are the significant factors that if present are expected to contribute to the realization of the intended impacts but are largely **beyond the control of the project** / project partners & stakeholders. The impact drivers and assumptions are ordinarily considered in Terminal Evaluations when assessing the sustainability of the project.

Since project logical frameworks do not often provide comprehensive information on the processes by which project outputs yield outcomes and eventually lead, via ‘intermediate states’ to impacts, the impact pathways need to be carefully examined and the following questions addressed:

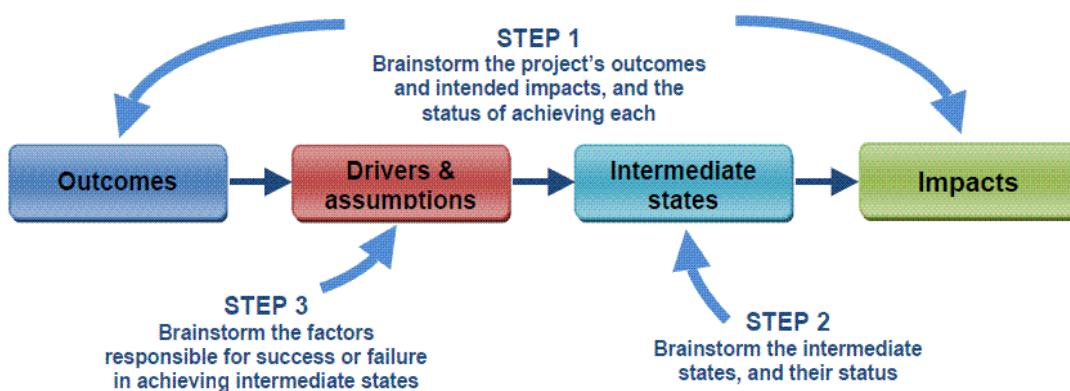
- Are there other causal pathways that would stem from the use of project outputs by other potential user groups?
- Is (each) impact pathway complete? Are there any missing intermediate states between project outcomes and impacts?
- Have the key impact drivers and assumptions been identified for each ‘step’ in the impact pathway.

Figure 3. A schematic ‘impact pathway’ showing intermediate states, assumptions and impact drivers (adapted from GEF EO 2009).



The process of identifying the impact pathways and specifying the impact drivers and assumptions can be done as a desk exercise by the evaluator or, preferably, as a group exercise, led by the evaluator with a cross-section of project stakeholders as part of an evaluation field mission or both. Ideally, the evaluator would have done a desk-based assessment of the project's theory of change and then use this understanding to facilitate a group exercise. The group exercise is best done through collective discussions to develop a visual model of the impact pathways using a card exercise. The component elements (outputs, outcomes, impact drivers, assumptions intended impacts etc.) of the impact pathways are written on individual cards and arranged and discussed as a group activity. Figure 4 below shows the suggested sequence of the group discussions needed to develop the TOC for the project.

Figure 4. Suggested sequencing of group discussions (from GEF EO 2009)



Once the theory of change model for the project is complete the evaluator can assess the design of the project intervention and collate evidence that will inform judgments on the extent and effectiveness of implementation, through the evaluation process. Performance

judgments are made always noting that project contexts can change and that adaptive management is required during project implementation.

The ROTI method requires ratings for outcomes achieved by the project and the progress made towards the ‘intermediate states’ at the time of the evaluation. According the GEF guidance on the method; “*The rating system is intended to recognize project preparation and conceptualization that considers its own assumptions, and that seeks to remove barriers to future scaling up and out. Projects that are a part of a long-term process need not at all be “penalized” for not achieving impacts in the lifetime of the project: the system recognizes projects’ forward thinking to eventual impacts, even if those impacts are eventually achieved by other partners and stakeholders, albeit with achievements based on present day, present project building blocks.*”

For example, a project receiving an “AA” rating appears likely to deliver impacts, while for a project receiving a “DD” this would seem unlikely, due to low achievement in outcomes and the limited likelihood of achieving the intermediate states needed for eventual impact (see Table 1).

Table 1. Rating scale for outcomes and progress towards ‘intermediate states’

Outcome Rating	Rating on progress toward Intermediate States
D: The project’s intended outcomes were not delivered	D: No measures taken to move towards intermediate states.
C: The project’s intended outcomes were delivered, but were not designed to feed into a continuing process after project funding	C: The measures designed to move towards intermediate states have started, but have not produced results.
B: The project’s intended outcomes were delivered, and were designed to feed into a continuing process, but with no prior allocation of responsibilities after project funding	B: The measures designed to move towards intermediate states have started and have produced results, which give no indication that they can progress towards the intended long term impact.
A: The project’s intended outcomes were delivered, and were designed to feed into a continuing process, with specific allocation of responsibilities after project funding.	A: The measures designed to move towards intermediate states have started and have produced results, which clearly indicate that they can progress towards the intended long term impact.

Thus a project will end up with a two letter rating e.g. AB, CD, BB etc. In addition the rating is give a ‘+’ notation if there is evidence of impacts accruing within the life of the project. The possible rating permutations are then translated onto the usual six point rating scale used in all UNEP project evaluations in the following way.

Table 2. Shows how the ratings for ‘achievement of outcomes’ and ‘progress towards intermediate states translate to ratings for the ‘Overall likelihood of impact achievement’ on a six point scale.

Highly Likely	Likely	Moderately Likely	Moderately Unlikely	Unlikely	Highly Unlikely
AA AB BA CA BB+ CB+ DA+ DB+	BB CB DA DB AC+ BC+	AC BC CC+ DC+	CC DC AD+ BD+	AD BD CD+ DD+	CD DD

In addition, projects that achieve documented changes in environmental status during the project's lifetime receive a positive impact rating, indicated by a “+”. The overall likelihood of achieving impacts is shown in Table 11 below (a + score above moves the double letter rating up one space in the 6-point scale).

The ROtI method provides a basis for comparisons across projects through application of a rating system that can indicate the expected impact. However it should be noted that whilst this will provide a relative scoring for all projects assessed, it does not imply that the results from projects can necessarily be aggregated. Nevertheless, since the approach yields greater clarity in the ‘results metrics’ for a project, opportunities where aggregation of project results might be possible can more readily be identified.

Results rating of project entitled:									
Outputs	Outcomes	Rating (D - A)			Impact (GEBs)	Rating (+)	Overall		
			Intermediary						
			1.	1.		1.			
			2.	2.		2.			
			3.	3.		3.			
Rating justification:			Rating justification:		Rating justification:				

Scoring Guidelines

The achievement of **Outputs** is largely assumed. Outputs are such concrete things as training courses held, numbers of persons trained, studies conducted, networks established, websites developed, and many others. Outputs reflect where and for what project funds were used. These were not rated: projects generally succeed in spending their funding.

Outcomes:

Outcomes, on the other hand, are the first level of intended results stemming from the outputs. Not so much the number of persons trained; but how many persons who then demonstrated that they had gained the intended knowledge or skills. Not a study conducted; but one that could change the evolution or development of the project. Not so much a network of NGOs established; but that the network showed potential for functioning as intended. A sound outcome might be genuinely improved strategic planning in SLM stemming from workshops, training courses, and networking.

Examples

Funds were spent, outputs were produced, but nothing in terms of outcomes was achieved. People attended training courses but there is no evidence of increased capacity. A website was developed, but no one used it. (Score – D)

Outcomes achieved but are dead ends; no forward linkages to intermediary stages in the future. People attended training courses, increased their capacities, but all left for other jobs shortly after; or were not given opportunities to apply their new skills. A website was developed and was used, but achieved little or nothing of what was intended because intended end users had no access to computers. People had meetings that led nowhere. Outcomes hypothesized or achieved, but either insignificant and/or *no evident linkages forward* to intermediary stages leading towards impacts. (Score – C)

Outcomes plus implicit linkages forward. Outcomes achieved and have *implicit forward linkages* to intermediary stages and impacts. Collaboration as evidenced by meetings and decisions made among a loose network is documented that should lead to better planning. Improved capacity is in place and should lead to desired intermediate outcomes. Providing implicit linkages to intermediary stages is probably the most common case when outcomes have been achieved. (Score - B)

Outcomes plus explicit linkages forward. Outcomes have *definite and explicit forward linkages* to intermediary stages and impacts. An alternative energy project may result in solar panels installed that reduced reliance on local wood fuels, with the outcome quantified in terms of reduced C emissions. Explicit forward linkages are easy to recognize in being concrete, but are relatively uncommon. (Score A)

Intermediary stages:

The **intermediate stage** indicates achievements that lead to Global Environmental Benefits, especially if the potential for scaling up is established.

“Outcomes” scored C or D. If the outcomes above scored C or D, there is no need to continue forward to score intermediate stages given that achievement of such is then not possible.

In spite of outcomes and implicit linkages, and follow-up actions, the project dead-ends. Although outcomes achieved have *implicit forward linkages* to intermediary stages and impacts, the project dead-ends. Outcomes turn out to be insufficient to move the project towards intermediate stages and to the eventual achievement of GEBs. Collaboration as evidenced by meetings and among participants in a network never progresses further. The implicit linkage based on follow-up never materializes. Although outcomes involve, for example, further participation and discussion, such actions do not take the project forward towards intended intermediate impacts. People have fun getting together and talking more, but nothing, based on the implicit forwards linkages, actually eventuates. (**Score = D**)

The measures designed to move towards intermediate states have started, but have not produced result, barriers and/or unmet assumptions may still exist. In spite of sound outputs and in spite of explicit forward linkages, there is limited possibility of intermediary stage achievement due to barriers not removed or unmet assumptions. This may be the fate of several policy related, capacity building, and networking projects: people work together, but fail to develop a way forward towards concrete results, or fail to successfully address inherent barriers. The project may increase ground cover and or carbon stocks, may reduce grazing or GHG emissions; and may have project level recommendations regarding scaling up; but barrier removal or the addressing of fatal assumptions means that scaling up remains limited and unlikely to be achieved at larger scales. Barriers can be policy and institutional limitations; (mis-) assumptions may have to do with markets or public – private sector relationships. (**Score = C**)

Barriers and assumptions are successfully addressed. Intermediary stage(s) planned or conceived have feasible direct and explicit forward linkages to impact achievement; barriers and assumptions are successfully addressed. The project achieves measurable intermediate impacts, and works to scale up and out, but falls well short of scaling up to global levels such that achievement of GEBs still lies in doubt. (**Score = B**)

Scaling up and out over time is possible. Measurable intermediary stage impacts achieved, scaling up to global levels and the achievement of GEBs appears to be well in reach over time. (**Score = A**)

Impact: Actual changes in environmental status

“Intermediary stages” scored B to A.

Measurable impacts achieved at a globally significant level within the project life-span. (Score = '+')