EVALUATION OF PILOT ECOSYSTEM ASSESSMENTS IN RWANDA, TANZANIA, AND UGANDA

Final Draft – December 2008

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EXECUTIVE SUMMARY

The Poverty Environment Initiative (PEI) has supported pilot ecosystem assessments in Rwanda, Tanzania, and Uganda. They represent an experiment on how such assessments can support environmental mainstreaming efforts. This experiment is based on the following sequence of activities and a number of expectations:

- Prepare detailed terms of references for three pilot ecosystem assessments.
- Provide financial support for these pilot assessments.
- Assemble a multidisciplinary team (with expertise in ecology, economics, research, analysis, writing, etc.).
- Expose the team to the ecosystem services concept, training, and advice from experts involved in the Millennium Ecosystem Assessment.
- Provide technical and review support to the team.
- Embed the pilot assessment into a government-PEI led effort to mainstream environment in poverty reduction efforts

PEI expected that each assessment team would:

- Carry out the research for an ecosystem assessment (of a region within the country).
- Produce a pilot ecosystem assessment report that follows the Millennium Ecosystem Assessment approach.
- Produce a pilot ecosystem assessment report that is equivalent in quality to reports of the Millennium Ecosystem Assessment.

The process of carrying out a pilot ecosystem assessment and the findings from the assessment would in turn contribute to one or more of the following results:

- Improve the information base to describe or understand the linkages between ecosystem services and human wellbeing.
- Influence national strategies (plans), policy actions, or resource allocations.
- Affect local decision-making.
- Build national capacity to undertake ecosystem assessment.

This report examines how close the three countries have come to achieving these results and which factors may have contributed to success or failure. PEI expects to use the findings of this evaluation to identify more optimal arrangements for future pilot ecosystem assessments. PEI will also explore how a pilot ecosystem assessment can be placed more strategically within a country's PEI project portfolio so that it contributes better to mainstreaming ecosystem services within poverty reduction efforts.

What the experience in three pilot countries shows

The findings are grouped into three categories outlined in the terms of reference for this evaluation: They include (1) capacity building and knowledge transfer, (2) assessment process and terms of references, and (3) results and impacts.

Findings: capacity building and knowledge transfer

The Millennium Ecosystem approach is a useful approach to examine the relationship between ecosystem change and human well-being and support mainstreaming efforts.

All interviewees of this evaluation, including those unfamiliar with the technical details of an ecosystem assessment, appreciated one of its benefits: the ability to

reveal relationships between ecosystem services and human well-being. Ecosystem assessments were perceived as a critical tool in PEI's mainstreaming efforts. A well conducted pilot ecosystem assessment can contribute to PEI objectives by providing evidence of the linkages between human well-being and ecosystem services and the relationship between ecosystem services.

A multidisciplinary country team, exposed to a Millennium Ecosystem Assessment training course and provided with technical support, can carry out the research for an ecosystem assessment that follows the Millennium Ecosystem Assessment approach.

All three assessment teams designed the assessment, conducted the field surveys, compiled and analyzed the data, and completed an assessment report.

With additional planning and support, such a country team can produce an assessment report close in quality to Millennium Ecosystem Assessment reports.

The scope and quality of the reports varied between the three countries, as did the final purpose for the assessment. None of the reports reached the same quality as the global synthesis report or the southern African integrated report published by the Millennium Ecosystem Assessment. The respective strengths of all three reports, however, indicate that a report quality close to the Millennium Ecosystem Assessment standard can be reached with additional planning and support.

The training did not prepare the assessment team and project manager on some aspects of an ecosystem assessment needed to mainstream its results in PEI efforts.

The training course did not provide enough detail on how to carry out a review process for draft reports, write a high quality and policy-relevant assessment report, or write a summary for policymakers. Nor did the training provide sufficient preparation to learn about different approaches of embedding a pilot assessment into a broader policy context and increasing its impact and use.

The learning by doing approach of a pilot assessment can build national capacity to undertake ecosystem assessments and influence university training as well.

Each pilot country has now about a handful of experts with practical experience in conducting an ecosystem assessment. About 30-50 persons in each country have been exposed in workshops to the key concepts of the Millennium Ecosystem Assessment. In each country, at least a 1,000 people, will have read or be familiar with the pilot ecosystem assessment, once all reports are distributed (this does not count online use). A new graduate-level course at Makerere University will teach students about ecosystem assessments and livelihoods.

Findings: assessment process and terms of references

None of the pilot assessments completed their work within the originally envisioned six months for the whole assessment.

The best managed and executed pilot assessment (Rwanda) required ten months, just from the inception workshop to a pre-print version of the report. Based on the three country experiences, a six-month time line without reducing the scope of the pilot assessment (which includes capacity building) or increasing resources appears to be unrealistic.

Linking the purpose of the pilot assessment (in the terms of reference) to an ongoing national process (that had established milestones and activities) was essential for Rwanda's uptake of assessment findings.

The main purpose of the Rwanda assessment (as specified in the terms of reference) was linked to a process with an established schedule of activities and demand for information (revision of the national poverty reduction strategy). The goals in the terms of references for Uganda and Tanzania were more general.

The tasks and outputs specified in the terms of reference for the Rwanda assessment were the most complete.

In comparison to the other countries' terms of references, the tasks and outputs listed for the Rwanda assessment included also a review process, data repository, information dissemination about the assessment process, and outreach. Tasks and outputs specified for Tanzania and Uganda were less comprehensive.

Technical support by an experienced assessment specialist is essential. The support for the Rwanda assessment was more comprehensive and evenly timed throughout the assessment process than in the other two countries.

The terms of reference for the Rwanda assessment included two additional country visits by an ecosystem assessment expert (for analytical, scenario, and writing support), which was not the case in Tanzania and Uganda.

Findings: results and impacts

Findings from pilot ecosystem assessments can provide useful information to describe or understand the linkages between ecosystem services and human wellbeing.

The assessments provided numerous examples for these linkages – such as the role of wetlands for food security during the dry season.

The process of carrying out a pilot ecosystem assessment and its findings can improve a national poverty reduction strategy originally weak on environmental issues.

The pilot ecosystem assessment in Rwanda combined with other PEI efforts, convinced policymakers to mainstream environmental issues into the national poverty reduction strategy. It required deliberate planning, consistent guidance on staying policy-relevant throughout the assessment process, extra attention during the report preparation, and tight project management.

There is no evidence yet from the pilot studies whether the process of carrying out a pilot ecosystem assessment and its findings can influence a national poverty reduction strategy that already addresses some environmental issues but does not cover ecosystem services comprehensively (as in Tanzania and Uganda).

The process of carrying out a pilot ecosystem assessment has the potential to affect local decision-making. Additional targeted outreach and products that are relevant for local decision-makers will be essential to ensure use of assessment findings.

None of the assessments had achieved significant results at local level yet. Decision-makers at district offices have expressed high expectations for a pilot assessment, seeking baseline data and new insights to improve their planning and management and to help them advocate for more resources and support.

The findings from a pilot ecosystem assessment and a pilot economic valuation of ecosystem services provide reinforcing messages to policymakers for mainstreaming.

Both the ecosystem assessment and the economic valuation study of ecosystem services helped to convince Rwanda policymakers to mainstream environmental

issues in the national poverty reduction strategy. The strength of an assessment is its ability to highlight ecosystem services – human well-being linkages. The strength of a valuation study is that an economic argument can be made for ecosystem services (once their role and importance has been documented).

The concept of ecosystem services, as defined by the Millennium Ecosystem Assessment, can be used in environmental awareness campaigns and translated into local examples, video images, and radio messages easily understood at village level.

A PEI funded awareness campaign in Uganda demonstrated that scientific concepts can be translated to a general audience and support local planning.

Each ecosystem assessment cost about $100,000, equivalent to the amount PEI has spent on a pilot economic valuation study. Of the three assessments, the Rwanda pilot provides the most value for PEI's mainstreaming objective.

How the Poverty Environment Initiative can improve future pilot assessments

The following recommendations focus on efforts PEI can initiate and incorporate in future assessments. The recommendations are grouped into the same three categories as in the previous section.

Recommendations: capacity building and knowledge transfer

To prepare the country team and project coordinator better, PEI needs to revise the training for a pilot assessment to support PEI's mainstreaming objective. Alternatively, PEI could fund technical assistance that works collaboratively (to build capacity) with the assessment team in some of these suggested areas.

- *Develop new training modules*
  Based on the challenges encountered by the pilot assessment teams, future training should cover the following issues: (1) How to conduct assessments in locations with little data and less scientific expertise. (2) How to integrate and analyze information from different scales and studies. (3) How to prepare a final integrated assessment report. (4) How to prepare targeted synthesis reports to reach different policymakers. (5) How to put a pilot assessment into a broader decision-making context.
- *Revise five-day training course to conduct ecosystem assessments*
  PEI should support efforts for a new training course (building on the South African training material) and work closely with UNEP-WCMC, UNEP, the secretariat for follow-up to the Subglobal Assessments of the Millennium Ecosystem Assessment, WRI, and others. It is recommended to drop some of the sessions from the original training in South Africa and replace them with the following: (1) one session sharing detailed technical information and experiences from the three PEI pilot studies (planning, questionnaires, focus group discussions, etc.); (2) another session teaching how to make ecosystem assessments more relevant for decision-making. The latter session could build on the ideas outlined in the upcoming UNEP-WCMC training manual (*Ecosystems and Human Well-Being: A Manual for Assessment Practitioners*), incorporate ideas from WRI's *Guide to Ecosystem Services* and other sources, and include some practical advice on preparing summary documents and other communication products.

- *Restructure inception workshop*
  PEI needs to separate more clearly between the stakeholder and technical component during the inception workshop to accommodate the schedule of senior policymakers. Establishing better quality control for presentations and training materials and investing in early preparatory work (including sufficient start up time), all can boost the quality of the inception workshop.

- *Plan capacity building efforts more deliberately*
  PEI needs to spell out its capacity building plans more clearly, if it seeks to continue to build a country's capacity to carry out an ecosystem assessment and to use its results in decision-making. PEI should plan to build capacity during and after the pilot ecosystem assessment. Its workplans should include supporting activities throughout the different PEI phases of country engagement. During the pilot ecosystem assessment, training and technical support should be a step-by-step process covering all stages of the assessment from project scoping to final dissemination of assessment results. After the pilot ecosystem assessment, PEI should expose all those decision-makers and country experts involved in the assessment to processes that build capacity on environmental reporting, ecosystem management, ecosystem monitoring, and university and science training.

- *Use follow-up efforts to the upcoming ecosystem assessment manual to improve training materials for PEI*
  During the review workshop for this report, participants suggested to link PEI's need for new training materials to efforts testing and promoting UNEP-WCMC's upcoming training manual (*Ecosystems and Human Well-Being: A Manual for Assessment Practitioners)* at regional workshops. PEI could participate and contribute to these workshops. For example, PEI could commission the collation of all technical materials from the pilot countries (planning documents, questionnaires, guidance for focus group discussions, etc.) and produce a summary of experiences and challenges encountered by the assessment teams. This could enrich the upcoming manual and identify needs for additional training materials.

- *Continuously identify opportunities for knowledge transfer*
  PEI may want to invest in specific monitoring and evaluation steps during the pilot ecosystem assessment, not only to improve future pilot ecosystem assessments, but also to establish regular country-led efforts to assess its ecosystems at various scales. Since PEI is a participant in the follow-up activities to the Millennium Ecosystem Assessment, it can become a node to leverage technical support and foster lesson learning and sharing about ecosystem assessments.

Recommendations: assessment process and terms of references

To create more optimal conditions for carrying out a pilot ecosystem assessment, PEI needs to establish firm ground rules for some assessment steps and add a few new supporting activities. These changes in the assessment process need to be incorporated into project plans and the revised terms of reference for the pilot ecosystem assessment (discussed separately later).

- *Develop more comprehensive and realistic project plans for the pilot ecosystem assessment*
  If PEI wants to increase the likelihood of successful pilot ecosystem assessments, it needs to develop more comprehensive and realistic project plans. More time and resources are needed for improved planning than was allocated in the three pilot countries. Project plans must include all necessary steps to produce an assessment, build ecosystem assessment capacity, and have policy impact. The plans should cover: (i) start up activities (initial scoping and engagement, training, inception workshops, etc.); (ii) data compilation, field work and analysis; (iii) assessment report preparation and review (both for the assessment report and a separate summary for decision-makers); and (iv) dissemination and communication of results. PEI will need to produce written plans and multiple terms of references (e.g., assessment team, international advisor, communication expert, etc.) rather than just a single terms of reference for the assessment team.
- *Plan the assessment process better, especially the steps covering writing, review, and policy engagement*
  Plan carefully and earmark resources for the tail end in the assessment process especially for writing, review, and policy engagement. Scheduling strategically timed writing and review workshops involving country stakeholders and technical advisors turned out to be a useful mechanism to keep an assessment on schedule.
- *Establish a reference group*
  The pilot assessment needs a very small group of motivated advisors coming from senior policy level, academic institutions, civil society, and the private sector to provide strategic advice, act as a sounding board for interim results or key messages, and assist in final outreach. During the start up phase, such a group can increase the legitimacy and relevance of the pilot ecosystem assessment by formulating key questions that need to be answered by the assessment.
- *Define responsibilities clearly for the ecosystem assessment team leader and the project manager*
  Selecting the best assessment team leader and project manager and clearly defining their responsibilities is the foundation for a successful pilot assessment. The team leader is responsible for the design of the assessment, coordination and quality of the research contributions, and production of the assessment report. The project manager has multiple tasks which ideally include: (1) project management (contracts, resource allocation, implementation of workplan, and achievements of milestones), (2) policy perspective when discussing research priorities, preparing outlines, and reviewing drafts, (3) liaison for assessment reference group, (4) coordinator for review process, and (5) liaison with PEI.
- *Plan for continued and step-by-step technical support*
  Technical support on how to conduct an ecosystem assessment is essential. A person who has practical experience with one of the sub-global assessments of the Millennium Ecosystem Assessment would be the most qualified. Partition the assessment process into distinct phases, with strategically placed technical support (e.g., training at the inception workshop, review meeting to guide analysis and scenarios, and writing retreat). Some of the pilot assessments may need separate management, analytical, writing, or editing support, as was the case in the pilot countries.
- *Establish a small ecosystem assessment team that can subcontract tasks*

A small team guided by multi-disciplinary perspectives is best. The Rwanda team recommended reducing the assessment team from six to four members. Uganda recommended splitting the team equally between academic researchers and independent consultants. High motivation, long-term interest in ecosystem and poverty issues, and commitment to the task once the inevitable delays have occurred, all are requirements. Plan to subcontract research assistance, GIS analysis, and other skills not available within the assessment team.

- *Pick simple pilot study sites*
  Balance data availability, logistical challenges, representativeness, and political support. A low cost site, with existing, readily available secondary data and background information is preferable because this frees resources for analysis and integration.
- *Invest in other supporting activities*
  Putting the pilot ecosystem assessment in a broader supportive context is a good idea. An awareness campaign about ecosystem services, which targets local communities included in the pilot ecosystem assessment, or an economic valuation study of ecosystem services, each can support and reinforce the work of the assessment.

PEI can improve the terms of references for pilot ecosystem assessments in the following areas:

- *Purpose*
  Define a narrow and very specific purpose that includes a policy audience. Avoid diffuse and general goal statements.
- *Tasks and outputs*
  Explicitly include tasks for writing and for the review process. Mention this in the outputs as well. Plan and budget for a separate summary for policymakers (which may require some special writing support and advice from policymakers).
- *Research and analytical methods*
  Have a bias toward secondary data. De-emphasize complex and very comprehensive data collection. Allocate more resources for integration and analysis. Test ideas for such integration and analysis even before the fieldwork.

Recommendations: results and impacts

PEI's approach to implement a pilot ecosystem assessment includes two core elements: achieving policy impact and building capacity to carry out ecosystem assessments. The likelihood of having a policy impact increases when the following conditions are met: purpose and workplan of a pilot assessment are matched with an ongoing policy process; the assessment provides salient information; and this information is communicated and injected effectively into this policy process. Capacity building requires a deceleration in the speed of the pilot assessment (compared to an assessment being conducted exclusively by external consultants) to provide time for revisions and learning for the team of country experts.

PEI can increase the likelihood of policy impact by focusing the assessment's purpose and improving the quality of its outputs.

- *Avoid launching a pilot assessment without a policy audience*

Linking the purpose of the pilot assessment to one ongoing policy or planning process with an established schedule creates more optimal conditions for policy impact. PEI should avoid launching a pilot assessment without such a link or a detailed plan for policy engagement.

- *Ensure better technical backstopping from PEI team to boost quality of reports and summaries*
  Better backstopping from PEI team and UNEP is needed to ensure adherence to the Millennium Ecosystem Assessment methodology and to support more policy relevant reports and summaries.
- *Identify and involve 'real' stakeholders from the beginning*
  PEI should help in identifying the 'real' stakeholders and decision-makers and involve them in the process of the pilot ecosystem assessment from the beginning (e.g., members of parliament rather than the civil service).

PEI can improve the quality of the assessment report and increase the policy relevance of its assessment outputs, by implementing the following ideas:

- *Match outline to the needs of policymakers*
  For future assessments, the outline and approach used by the synthesis report of the Millennium Ecosystem Assessment (*Ecosystems and Human Well-being*), a format targeting policymakers and decision-makers, should be introduced to the assessment team and considered when discussing different options for an outline.
- *Scale back the scope of report but don't skip sections essential for PEI*
  A pilot assessment may have to scale back the scope of the report (and the underlying research). From PEI's mainstreaming perspective the report needs to include at least three sections: (1) How have ecosystems changed? (2) How have ecosystem services and their uses changed? (3) How have ecosystem changes affected human well-being and poverty alleviation?
- *Keep scenarios simple*
  Scenarios are appreciated by policymakers, but good scenarios require expertise and time. Partnering the assessment team with an expert and spending one day to produce two relatively simple scenarios, as was done Rwanda, may be most appropriate approach for a pilot assessment.
- *Invest extra efforts to make the findings of the report policy relevant*
  Identifying main messages in a separate section, discussing a few emerging issues of high policy relevance, and using text boxes to highlight important linkages and possible trade-offs, all are useful writing techniques to reach a policy audience.
- *Produce a separate summary for decision-makers*
  This summary should be outlined at the same time as the pilot assessment report. Organize a separate workshop to develop main messages, ideally joined by an experienced writer and a few motivated senior decision-makers.

PEI has some opportunities to improve the cost-effectiveness of its ecosystem assessments and use its information tools more strategically. They include:

- *Conducting the pilot ecosystem assessment and the economic valuation study in the same location which may provide cost savings.*

- *Ensuring that the experience of the pilot ecosystem assessment gets translated into academic training and continues to build capacity in the country.*
- *Developing a less expensive tool to assess ecosystem services and human well-being in situation with no or very little environmental mainstreaming.*
- *Matching the scope and emphasis of an assessment with the level of mainstreaming environment in the poverty reduction strategy (or any other process).*
- *Using pilot ecosystem assessments and pilot economic valuation studies in a more coordinated way and with a more strategic perspective.*

I. INTRODUCTION

Over the past two and half years, UNDP-UNEP's Poverty Environment Initiative (PEI) has supported pilot ecosystem assessments in Rwanda, Tanzania, and Uganda. The objectives of each assessment were to:

- Improve country-specific information on the linkages between ecosystem services and human well-being to inform and influence national planning processes - such as poverty reduction strategies - and to improve environmental decision-making.
- Provide policy options for improved environmental management and guiding the key responses related to the use and management of ecosystems and human well-being.
- Build national capacity to undertake ecosystem assessments and provide a framework for identifying mechanisms, tools and benchmarks for undertaking similar assessments conducted at different scales and scope.
- Demonstrate the advantages of the Millennium Ecosystem Assessment's conceptual approach for an ecosystem assessment in providing policy-relevant scientific information on the relationships between ecosystem change and human well-being to decision-makers.

Other countries have expressed interest for PEI's support to carry out their own ecosystem assessments. Before supporting new ecosystem assessments in other countries, PEI contracted the World Resources Institute (WRI) to carry out a rapid evaluation of the three pilot ecosystem assessments (see Appendix 1 - TOR for Rapid Evaluation of Pilot Ecosystem Assessments).

The purpose of this evaluation is to assess how relevant, effective, and efficient these pilot assessments have been in line with the PEI objective of mainstreaming environment into country level development planning and budgeting processes. More specifically, WRI has been encouraged to focus the evaluation on the following three issues:

- Assessment arrangements, assessment process, terms of references, and assessment methods.
- Capacity building and knowledge transfer.
- Results and impacts of the three pilot ecosystem assessments.

WRI carried out this review during September and October 2008. It included a desk review of a PEI funded training manual, training workshop reports, terms of references for country teams and an international advisor, mission reports, questionnaires, assessment reports, and draft policy briefs. The evaluator reviewed the assessment process with PEI and UNEP staff in Nairobi, discussed experiences with representatives from national assessment teams and users of ecosystem assessments in the three countries, and interviewed two experts of the Millennium Ecosystem Assessment who provided technical support to the three pilot assessments (see Appendix 2 – List of Persons Interviewed).

In December 2008, PEI and WRI organized a workshop to review a draft of this evaluation report. Workshop participants included representatives from the Poverty Environment Facility, the Africa team of the Poverty Environment Initiative, the Division of Early Warning (DEWA) and the Division of Environment Policy and

Implementation (DEPI) at UNEP, UNEP's World Conservation Monitoring Centre (WCMC), as well as country representatives from Tanzania, Uganda, Rwanda, Burkina Faso, and Mauritania involved in PEI supported pilot ecosystem assessments (see Appendix 3 – List of Workshop Participants).

Workshop participants commented on the findings and recommendations of the draft evaluation report. Their observations on the three evaluation components are now listed in separate sections of this report and are also incorporated in its final recommendations.

II. Assessment Process, Terms of References, and Research Methods

This section reviews the assessment process and the terms of references for the pilot ecosystem assessments. A comparison of the research methods used in the pilot countries follows next. It concludes with comments on these issues from participants of the review workshop.

Evaluation of the assessment process

To examine the assessment process the following issues are of interest: main assessment activities completed by the time of this evaluation, selection of assessment sites, size of teams and team composition, and the level of international technical support. Since the pilot assessment was one project within a broader set of activities promoted by PEI, a look at other supporting activities can be instructive.

Main ecosystem assessment activities completed

The idea for the three pilot ecosystem assessments was conceived in 2005 (Phase I of PEI roughly covering a two-year period from 2005 to 2006). The original plan consisted of sending three participants from each county to South Africa (September 2005) for a five-day training course on carrying out an ecosystem assessment (building on the approach and experiences of the Millennium Ecosystem Assessment). These participants would then play a leading role (as researchers, coordinators, or reviewers) in the country's first pilot ecosystem assessment, scheduled to be carried out in 2006.

All three assessments were initially conceived to follow a similar plan consisting of comparable tasks and outputs to be completed within six months. PEI Nairobi envisioned that after a set of start up activities (training course, site and team selection, and inception workshop), the team would first conduct its research (data compilation, field visits, and analysis), and then prepare the assessment report (including a review of the draft). In a final and fourth step, the PEI country team would disseminate the assessment report and its findings to national and local stakeholders.

While all three pilot assessments were conceived at the same time and followed a similar plan, local circumstances influenced the execution of each assessment leaving each at a different stage in the assessment process. Table 1 summarizes which of the envisioned main activities had been completed by September 2008.

The Rwanda team was the only team that had reached the dissemination step for its assessment. It had completed all major activities except a workshop to communicate the ecosystem assessment findings to local (District and village) stakeholders. The Tanzanian assessment did not conduct a full external review for its assessment report. Both the Tanzania and Uganda team had not printed and distributed their ecosystem assessment report yet, making it premature to assess to what degree its findings had been taken up in the country's decision-making processes.

Table 1 Main ecosystem assessment activities completed by September 2008

	Rwanda	Tanzania	Uganda
Start up activities			
Training of trainers course (South Africa)	✓	✓	✓
Concept note and TORs	✓	✓	✓
Selection of site and scales	✓	✓	✓
Selection of team	✓	✓	✓
Inception workshop and training	✓	✓	✓
Data compilation, field work and analysis			
Literature review	✓	✓	✓
Field work and other data compilation	✓	✓	✓
Data integration and analysis	✓	✓	✓
Assessment report preparation and rewiew			
Writing of assessment report	✓	✓	✓
Writing of synthesis/summary	✓	✓	✓
Internal review of assessment report	✓	✓	✓
External review of assessment report	✓	limited	✓
Editing of assessment report	✓ (team)	✓ (team)	✓ (editor)
EA final report completed (pre-print)	✓		✓
Printing of assessment report	✓		
Dissemination (report and findings)			
Presentation to national stakeholders	✓		
Presentation to local stakeholders			
Distribution of assessment report	✓		

Selection of study sites

All three countries carried out the assessment at two scales (see Table 2): district and local level (village or subcounty). The respective PEI country team took the lead in selecting the regional scale of the assessment with Bugesera District in Rwanda, mountain ecosystems (Mbinga District) in Tanzania, and three districts in the Lake Kyoga catchment of Uganda. In all three countries, the ecosystem assessment team selected the sites at local scale.

Different factors drove the choice of the regional study site. The Rwanda district was selected because it had a great supply of readily available information (allowing the assessment team to concentrate its resources on analysis and integration of information). Policymakers also had raised alarm about negative environmental and human well-being trends in the Rwanda district. Underrepresentation of the southern region in previous studies and policymakers' concerns about degrading mountain ecosystems were the main factors determining the Tanzanian selection. The lack of an integrated study with an ecosystem and watershed perspective for one of Uganda's most important watersheds, was one of the main criteria for the Uganda site.

The Rwanda assessment had the simplest design resulting in the lowest costs for logistics and data collection (see Table 2). It included one region and two villages, all in relative close proximity to each other and the capital Kigali. The Tanzania assessment had the highest number of local sites (six villages) increasing the time and resources needed for focus groups discussions, in depth interviews, household surveys, and transect walks. The Tanzanian team also had the longest distance to travel to its assessment location. While Uganda only had four sites at local scale (four Subcounties) in three districts, the discontiguous spatial distribution of these sites in three districts within the Lake Kyoga catchment required multiple journeys increasing travel and time commitments from the ecosystem assessment team.

Table 2 Assessment site and assessment team

	Rwanda	Tanzania	Uganda
Multi-scale assessment	1 District 2 Villages	1 District 6 Villages	3 Districts (discontiguous) 4 Subcounties
Selection of assessment site (ecosystem or district scale)	PEI country team (REMA, UNDP, and MINECOFIN)	PEI country team (NEMC, VPO, UNDP)	PEI country team in general, review by PEI Technical Committee
Selection of assessment sites (local scale)	Assessment team	Assessment team members from district	Assessment team
Distance to regional sites	1 hour	1.5 days (2 field visits conducted)	3 and 4 hours, respectively
Selection process for team	- Public call for proposals - Selection based on submitted CVs	Identification of team members based on skills and availability	Identification of team members based on skills and availability
Assessment team	5 persons + PEI project coordinator	10 persons + PEI project coordinator	6 persons + PEI project coordinator
Additional research assistants subcontracted by assessment team	Yes	No	Yes

Size and composition of the assessment team

Assessment teams ranged between 5 to 10 persons, which did not include the PEI project coordinator (Table 2). All assessment teams hired additional assistants (students) to conduct field work or support research.

The Rwandan assessment team was the smallest in size. PEI Rwanda preferred a team consisting exclusively of consultants. The goal was to carry out the ecosystem assessment quickly and feed its preliminary findings into the preparation of Rwanda's national Economic Development and Poverty Reduction Strategy (EDPRS). Team members were selected from a pool of applicants responding to a public call for proposals.

Both Tanzania and Uganda did not rely on a public procurement process to identify its assessment team. In both countries team members were purposefully targeted to include a majority of researchers from academic institutions. The intent was to increase the likelihood of embedding the ideas and experiences from the pilot assessment in future university training and teaching. Tanzania had the largest team, which included team members from local institutions in the district.

International technical support for the pilot assessment

As Table 3 indicates, the Rwandan team took the most advantage of external advice and reviews, budgeting not only for expertise during the inception workshop and training, but also for two more country visits by an expert from the Southern African Millennium Ecosystem Assessment (SAfMA). Due to the long delay in the start up of the Tanzanian effort – the pilot assessment was launched almost a year later than in the other two countries – the assessment could no longer hire external advice from the SAfMA expert because of her unavailability.

All country teams reported that the participation of assessment team members from neighboring countries was motivating and useful for their planning and execution of the assessment (although some advice such as selecting a region with lower travel costs or a greater supply of secondary data came too late in the process to influence the Tanzanian design of the assessment).

All three pilot assessments received review support on their concept note or TOR for the assessment team from PEI Nairobi or the SAfMA expert. Generally, this advice tried to temper overambitious research designs (encouraging the country teams to scale back the number of data collection sites), keep the assessment focused on producing a policy relevant report (encouraging the team to identify policy opportunities from the onset of the assessment), and develop more specific outreach and engagement plans to reach local and national stakeholders once the assessment report had been written. Some of theses comments were not reflected in the TORs for various reasons including limited resources, timing of comments in assessment process, or just different local preferences.

The assessment teams in Rwanda and Uganda appreciated international review comments on the draft questionnaire for the household survey (and reflected them in the revisions). Tanzania then used the Rwandan and Ugandan questionnaires to guide the development of their own questionnaire. The advice to produce a first outline of the assessment report and then tailor the questionnaire to that outline was another useful review suggestion adapted by the Ugandan and Rwandan assessment teams, respectively.

Table 3 International technical support for the assessment and peer review

	Rwanda	**Tanzania**	**Uganda**
International technical support for the pilot assessment	Inception workshop, 2 writing & analysis workshops	Inception workshop	Inception workshop
International review support for the pilot assessment	TORs, questionnaire for household survey, and draft report	Concept note & TOR (limited)	TORs, questionnaire for household survey, and draft report
Participation at inception workshop from other PEI countries	—	1 participant from Rwanda 1 participant from Uganda (planned)	1 participant from Tanzania 1 participant from Rwanda

Other supporting activities

In all three countries, PEI initiated or supported other activities to promote the concept of ecosystem services (see Table 4). These activities increased the number of individuals becoming familiar with the concept of ecosystem services and their links to human well-being. These activities contributed to broader stakeholder awareness about poverty-environment relationships and encouraged involvement and support in the pilot assessment.

In 2005, Tanzania organized a five-day workshop highlighting national experiences in ecosystem management. The workshop was attended by 37 participants from government, universities, and civil society and influenced follow-up discussions on which type of ecosystem should be prioritized for a pilot assessment. Participants from the workshop also led the country's effort to produce a rapid assessment of

mountain ecosystems (which incorporated the idea of provisioning, regulating, cultural, and supporting ecosystem services in the final publication).

Rwanda carried out an economic valuation study of selected wetlands and their ecosystem services. Although focused on a separate location than the pilot assessment, its findings documented the drastic changes in the supply of ecosystem services important for national development (e.g., water for hydropower generation) and local livelihoods (e.g., fish, water, and other wetland products). The study reinforced the findings from the pilot ecosystem assessment, and together they built a stronger case for promoting sustainable ecosystem management in the EDPRS.

Uganda commissioned a desk study highlighting ecosystem-poverty links, which was presented at the inception workshop of the pilot assessment. Most noteworthy, PEI Uganda organized a broad awareness campaign about ecosystem services. It included a national one-day workshop on ecosystem services targeting national stakeholders. PEI supported the national broadcast of a video translating the MA's provisioning, regulating, cultural, and supporting ecosystem services into examples easily understood at community level. PEI also supported a local awareness campaign about ecosystem services – led by two Ugandan environmental education NGOs – targeting the Subcounties in which the pilot ecosystem assessment was being conducted.

Table 4 Other activities promoting the importance of ecosystem services

	Rwanda	Tanzania	Uganda
Workshop on ecosystem and ecosystem services		✓	
Rapid assessment of mountain ecosystems		✓	
Economic valuation study of wetlands	✓		
Desk review highlighting ecosystem and human well-being links			✓
Promotion of ecosystem services approach to local communities			✓
Promotion of ecosystem services approach to national audience			✓
Draft policy briefs highlighting key issues from pilot assessment			✓

Execution of the pilot ecosystem assessments

The following review of the execution of the pilot assessments will look at three issues:

- When did country teams achieve their milestones?
- Where did significant delays occur that could be instructive for the planning of future assessments?
- What were some of the management and coordination challenges?

Achievement of milestones

Table 5 shows when each country team achieved different milestones during the assessment. It also summarizes the activities or outputs that had not been completed by September 2008. An analysis of this table allows to compare the average lengths of assessment steps and to pinpoint delays during the assessment. This information will provide insights for preparing future pilot assessments and managing the assessment process better.

None of the countries completed the pilot assessment within the originally envisioned six months. When the pilot assessments were conceived in 2005, a six-month period

Table 5 Execution of the Pilot Ecosytem Assesments: Milestones and Outputs

		Milestones	Rwanda	Tanzania	Uganda		
2005	1					1	
	2					2	
	3	International Launch of MA				3	P
	4					4	
	5					5	E
	6			**5-day workshop on ecosystem management - Tanga**		6	
	7					7	I
	8					8	
	9	**South Africa Training**	3 participants - 0 joined EA team	3 participants - 1 joined EA team (project coordinator)	3 participants - 1 joined EA team (+ project coordinator)	9	
	10					10	
	11		*EA included in 2006 workplan*	*EA included in 2006 workplan*	*EA included in 2006 workplan*	11	P
	12		*TOR for EA team finalized / Bugesera selected*	*Task force to prioritize ecosystems for assessment*	*TOR for EA team finalized / Lake Kyoga selected*	12	
2006	1		*Call for proposals for EA / PEI technical advisor starts*	*Mountain ecosystems selected as national priority*	*EA team selected*	1	H
	2					2	
	3		*EA team selected*		**Inception workshop and training - Jinja**	3	A
	4		**Inception workshop and training - Butare**	*Rapid assessment of mountain ecosystems*		4	
	5		Scoping trip/pretest - Bugesera District	*Rapid assessment of mountain ecosystems*		5	S
	6		Field work - Bugesera District	***Livingstone Mountains*** *selected - Visit to* ***Mbinga District***		6	
	7		*Data entry and analysis - completed*	*Draft concept note for EA completed*	Reconnaissance	7	E
	8		EA report first draft - completed - Writing Retreat 1		Pretest - Selected subcounties	8	
	9		EA report second draft - Writing Retreat 2	*Requested EA funds from UNDP*	Field work - 4 subcounties I CSO/CBO awareness campaign	9	
	10		EA report external review draft - completed		Field work - 4 subcounties I CSO/CBO awareness campaign	10	I
	11		*External review of EA report (comprehensive review)*	*First UNEP mission*	Field work - 4 subcounties I CSO/CBO awareness campaign	11	
	12		*Revisions and editingt of EA report*	*Draft concept note for EA shared with PEI-Nairobi/UNEP*	*Data entry and analysis completed*	12	
2007	1		EA final report completed (pre-print)	*TOR for EA team finalized / team selected*		1	
	2		*Pre-print version of EA report - start distribution*	**Inception workshop and training - Morogoro**	EA report first draft - completed	2	
	3			*Final concept note/TOR (no revisions)*		3	P
	4				EA report first external review draft - PEI-Nairobi/UNEP/SAfMA	4	
	5		Presentation of EA results to national stakeholders	Scoping trip/pretest - Livingstone Mountains / Mbinga District		5	E
	6					6	
	7			Field work 1 (wet season) - Mbinga District		7	I
	8			*Plan for data entry and analysis developed*	EA report second external review draft - PEI-Nairobi/UNEP	8	
	9					9	
	10			*Data entry and analysis (90 %) completed*		10	
	11			Field work 2 (dry seaon) - Mbinga District		11	P
	12		EA report printed	EA report first draft - completed - Writing Retreat 1		12	
2008	1		*Printed EA report - start of distribution*	EA report second draft - completed	*PEI technical advisor starts*	1	H
	2					2	
	3				EA report to editor	3	A
	4				Draft of three policy briefs - shared with UNEP	4	
	5					5	S
	6		*Printed EA report - 1,000 copies distributed*	EA report external review draft - shared with UNEP	Second draft of three policy briefs completed	6	
	7				EA final report completed (pre-print)	7	E
	8					8	
	9					9	
	10					10	II
	11					11	
	12					12	

Legend for Milestones

- Inception workshop
- Field work
- Preparation of draft EA report
- External EA draft & review
- EA final report (pre-print)
- EA report printed
- Presentation - national
- Policy briefs - draft

Rwanda	Tanzania	Uganda
ACTIVITIES NOT COMPLETED YET: SEP 2008	**ACTIVITIES NOT COMPLETED YET: SEP 2008**	**ACTIVITIES NOT COMPLETED YET: SEP 2008**
Presentation of EA results to local stakeholders	Full external review process	Print EA report
	Complete EA final report (pre-print version)	Distribute EA report
	Print EA report	Presentation of EA results to national stakeholders
	Distribute EA report	Presentation of EA results to local stakeholders
	Presentation of EA results to national stakeholders	Finalize policy briefs
	Presentation of EA results to local stakeholders	Print policy briefs
		Distribute policy briefs

was not an unreasonable estimate. At that time, the only other experience for a pilot ecosystem assessment in Africa had been in southern Africa. The Southern African Millennium Ecosystem Assessment (SAfMA) had carried out a pilot assessment (including a 16-page summary) within four months. However, the SAfMA pilot assessment and the country assessments supported by PEI differed in three major ways: SAfMA relied exclusively on readily available secondary data and studies (no field work and primary data were collected); the region had a greater number of experts in academic and research institutions both at senior and student level; and the SAfMA pilot assessment did not try to influence policy or decision-making on poverty-environment issues. The SAfMA pilot assessment focused instead on the narrower purpose of developing and testing ideas on how to conduct a multi-scale assessment with multiple lead authors and of building stakeholder awareness and involvement within the southern African region for the ongoing full assessment.

Of the three assessments, the Rwandan assessment was the quickest. It completed its pre-print version of the ecosystem assessment report within ten months after the inception workshop. The following factors contributed to its speed: It was the assessment with the least complicated design and the most direct and urgent policy link (creating a strong incentive to produce and share findings). Its team consisted exclusively of consultants, and the assessment process was the most tightly managed (the PEI technical advisor mentioned weekly or biweekly team meetings). The Rwanda assessment also leveraged the greatest amount of time and expertise from outside the country.

Timeliness and delays

A couple of observation on timeliness and delays as summarized in Table 6:

- Longest *start up phase*: 14 months
  Although planned in 2005 and budgeted for 2006, it took until 2007 before the PEI country team in Tanzania could commit to conduct the inception workshop. Reasons for the delay discussed with the evaluator include: difficulties in communication and reaching agreement on project priorities and resource allocation (the whole PEI Tanzania project went through a difficult management phase with PEI Nairobi); the PEI project coordinator and the National Environment Management Council (NEMC) who were identified to initiate and manage the pilot ecosystem assessment focused their time in 2006 on other projects such as the rapid assessment of mountain ecosystems.
- Longest time period between *inception workshop and field work*: 4 months
  One factor contributing to a short delay in Uganda was the difficulties PEI Uganda encountered in contracting the assessment team. Options included making a contract with an institution (university) or with individual researchers. In the end, the National Environment Management Authority (NEMA) decided to contract the team leader directly who then was responsible for subcontracting specific tasks to other team members. Government procurement process turned out to be cumbersome, for example delaying payments to the assessment team. The assessment team had to start their work without contractual arrangements fully in place.
- Longest time period for *field work*: 7 months
  Two data collection trips to cover the dry and wet season explain this pattern in Tanzania. Multiple visits to districts and field sites located in different

locations upstream and downstream in a very large catchment account for the five months in Uganda.

Table 6 Timeliness and delays

	Rwanda	Tanzania	Uganda
Envisioned time period from inception workshop to final report	February–July 2006 (6 months)	February–July 2007 (6 months)	March–August 2006 (6 months)
Actual time period from inception workshop to final report (pre-print version)	April 2006–January 2007 (10 months)	February 2007–June 2008 (17 months) [incomplete external review]	March 2006–July 2008 (29 months)
Time period from start-up until inception workshop	4 months	14 months	3 months
Time period from inception workshop to field work	1 month	3 months	4 months
Time period to complete field work	2 months	7 months	5 months
Time period from internal draft document to external review draft	3 months	7 months	3 months
Time required for external review and revisions up to pre-print version	3 months	Not completed yet	16 months
Time period from pre-print version to printed report	12 months	Not completed yet	Not completed yet

- Longest time period *between internal and external review draft*: 7 months
  It took about three months to complete this step in Rwanda and Uganda. While the Tanzanian team begun their first drafts immediately following the field work, it took an extra few months to complete the external review version that was sent to PEI Nairobi. In fact, the PEI country focal point had to intervene to push for the release of this external review document.
- Longest time period for *external review, revisions, and final edits*: 16 months
  The Uganda team produced an internal draft report very quickly (comparable to the other two countries), but it took about a year (and two external review versions) to produce a draft ready for a professional editor. She delivered a final pre-print version four months later. The major factor contributing to this delay was that team members had other commitments at the university. The quality and readability of the report, however, improved greatly through these revisions.
- Longest time period from *pre-print version to printed report*: 12 months
  It took about a year to move from the pre-print version to the final printed product in Rwanda. Reasons for this delay include other high priorities for PEI Rwanda working on the EDPRS and the desire to produce a joint set of publications consisting of the pilot assessment and two other reports, one on economic valuation and the other on poverty environment indicators. During these 12 months, however, the Rwandan team shared preliminary findings and distributed photocopies and briefed stakeholders at a national workshop.

Responsibilities of team members and management

Table 7 summarizes the responsibilities of selected team member and highlights some management and communication issues brought up during the interviews. Analyzing and contrasting these country experiences can provide general insights on how to identify the skills required for a pilot assessment and to assign responsibilities within the ecosystem assessment project.

Assessment team leaders ensured well coordinated and high quality field work

All three assessment team leaders had considerable experience in leading research and managing teams. They ensured well coordinated and high quality field work and challenged team members to boost the quality of their contributions. In Rwanda, the assessment team leader had to fill gaps when contributions did not meet expectations, for example because of language difficulties.

PEI project coordinators were essential assessment team members

In all three countries, the PEI project coordinator played an important role that went beyond project management. In Uganda and Tanzania, the project coordinators had completed the five-day training in South Africa and thus had detailed knowledge about the Millennium Ecosystem Assessment approach and local assessment methods. In all three countries, the PEI project coordinator participated in regular planning meetings and contributed to the design of the assessment.

Writing and editing of the assessment report – a task which required considerable technical support

In Tanzania, the PEI coordinator played a key role in the writing and editing of the assessment report. The Uganda pilot assessment hired an editor, who had strong experience in producing Uganda's national report on the environment, to finalize the pilot assessment report. The PEI country technical advisor in Rwanda rewrote drafts and was closely involved in editing and finalizing the assessment report. The SAfMA expert reviewed multiple drafts in Rwanda and the first draft in Uganda. She also advised the Rwanda team during two analytical and writing workshops.

Assessment needed person(s) to push assessment team to produce a policy relevant report

This was an important role for the PEI project coordinator in Rwanda. He challenged the assessment team consistently to prepare a report relevant to policymakers pushing the authors to produce analysis and findings that would be useful for Rwanda's EDPRS.

PEI country technical advisor can boost analytical and writing quality

With a PEI country technical advisor, the Rwanda team had an extra hand on deck that could support the assessment. The Rwanda assessment took full advantage of that opportunity benefiting from considerable support that helped to shape analysis, writing, and editing of the report.

PEI project coordinator has to commit to a comprehensive review process that is fully supported by the authors from assessment team

The PEI project coordinators in Rwanda and Uganda shepherded the external review draft through its review process. It is important that the assessment authors

Table 7 Responsibilities of team members and management

	Rwanda	Tanzania	Uganda
Contributions of PEI country team and ecosystem assessment team			
PEI country technical advisor	Considerable input into project management, assessment management, analysis, writing, and review	Few if any input into assessment activities (had left country once field work was underway)	No advisor
PEI project coordinator	Lead on project management and considerable input into assessment management, analysis, and review	Lead on project management and considerable role in coordinating writing and finalizing report	Lead on project management; input into research design; considerable role in coordinating review
Assessment team leader	Coordinator of work and responsible for contributions; technical backstop for weak writing; contracted and managed research assistants	Lead on designing research and field work; considerable role in writing	Coordinator of work; responsible for contributions; technical backstop; considerable contribution to writing (junior member of team became the assigned lead editor); coordinated and managed research assistants
PEI country focal point	Reviews	Input into project management and reviews	Report review, dissemination
Interaction between PEI Nairobi and PEI country team			
Communication and management	OK	Problems reported	OK
Contracts	OK (slight delay at start up)	Problems reported	OK
Interaction between PEI country team and ecosystem assessment team			
Communication and management	OK – but assertive interventions needed	Some challenges to leverage writing contributions	Some challenges to leverage writing contributions
Contracts	OK	OK	Problems reported
Role of PEI country team versus ecosystem assessment team clearly defined			
	OK	OK	OK
Role of PEI Nairobi in ecosystem assessment clearly defined			
	Yes (technical review)	Not clear (international technical review muddled with PEI project oversight)	Yes (technical review)
Interaction between assessment team members			
	Problems reported	OK	OK
Mechanism to achieve milestones on time			
Writing workshop	Yes	No	No
Review workshop	Yes	No	No
Direct policy link	Yes (EDPRS)	No	No

understand the importance of peer review in the assessment process and commit time to revise the drafts for the assessment report. The Millennium Ecosystem Assessment spent considerable resources on their review, which consisted of well defined steps specifying how to obtain comments and how to integrate comments into revisions of draft reports.

PEI project coordinator may have to resolve interpersonal problems within assessment team
Negative dynamics within the Rwandan assessment team – resulting from interpersonal, performance, and administrative disagreements – threatened to undermine the productivity of the team. It required an assertive intervention from the PEI project manager to overcome these problems.

Difficulties to leverage timely and quality contributions in final phase of assessment
In the discussions with the evaluator, two country teams mentioned the challenge of obtaining timely and quality contributions during the final writing stages of the assessment. The PEI project coordinator in Tanzania reported a problem with leveraging writing contributions and revisions once few consultant days were left toward the end of the assessment. The Uganda PEI project coordinator had a similar challenge during the review and revisions of the draft report.

Strategically timed review workshops can keep assessment team focused
The strategically timed writing and review workshops in Rwanda and the participation of the SAfMA expert created a strong incentive for the authors to produce and deliver their interim products. In addition, the demand for examples and facts from stakeholders involved in Rwanda's EDPRS, created a steady pull on the pilot assessment.

Other management problems can spill over and influence assessment process
The Tanzania assessment could not take advantage of the SAfMA expertise because of a long delay in the start up phase. Various factors contributed to this setback and included management problems between PEI Nairobi and PEI Tanzania on the broader PEI project. In fact, communication had broken down between PEI Nairobi and PEI Tanzania, requiring an external intervention to reconnect and define respective roles on budgets, management, and oversight. The benefits of an external review of the terms of reference or the peer review of draft reports were not fully clarified from the onset of the project. It should have been made clear that because of the experimental nature of the pilot assessment, external advisors were needed and could make useful contributions. This did not necessarily reflect a micro management approach by PEI Nairobi.

PEI country focal points can leverage policy support and encourage policy relevance
The PEI country focal points in Rwanda and Tanzania perceived the pilot ecosystem assessment and its underlying conceptual approach as a useful tool to examine the relationship between human well-being and ecosystem services. Although they did not have detailed technical knowledge on how to conduct an ecosystem assessment, they fully supported the project. Their contributions were most useful when it came to getting the attention of senior policymakers (e.g., to participate in a stakeholder workshop) or demanding a more policy relevant assessment report.

Evaluation of the terms of references

An analysis of the execution of the pilot assessment, as done in the previous section, can reveal potential bottlenecks or other limitations in the assessment process. Some of these issues could be anticipated in the planning for the pilot assessment and addressed in the terms of references for future assessments. This section will compare

the content of the terms of reference for the pilot assessments in Rwanda, Uganda, and Tanzania.

Content of terms of references

Both the first project concept note for the pilot assessment and the terms of reference for the assessment team specified the purpose, team composition, tasks, and outputs for the pilot assessment. These issues are discussed in more detail below. The Rwanda assessment was the only assessment with a seperate terms of reference for the SAfMA expert. She provided training at the inception workshop and technical support on research, analysis, and writing.

Purpose

All three pilot countries mentioned five or six purposes in their terms of reference for the assessment. Three purposes were common among all pilot assessments:

- Improve information base on the linkages between ecosystem services and human well-being.
- Build the country's capacity to undertake an ecosystem assessment.
- Demonstrate the advantages of the Millennium Ecosystem Assessment approach.

However, the terms of references for the three countries differed how they linked to more specific policy opportunities and follow-up activities.

Rwanda also aimed to:

- Inform and influence the country's second national poverty reduction strategy (EDPRS)
- Provide policy options for improved environmental management for Bugesera District.
- Establish a foundation to mobilize funds for a national ecosystem assessment.

In addition, the Rwanda assessment sought to

- Identify drivers of change to inform the monitoring and evaluation framework for the poverty reduction strategy.

It was more difficult for Tanzania and Uganda to link the findings from the pilot assessment to the national poverty reduction strategy. Both countries had already revised their national poverty reduction strategies (MKUKUTA and PEAP, respectively) and incorporated environment issues into their strategies. Although a more careful analysis of these strategies would have revealed that there are still substantial opportunities to include an ecosystem services perspective into these strategies. Ecosystem assessments, when done well, can reveal often overlooked issues important for national development such as trade-offs (e.g., between provisioning and regulating services, between upstream and downstream users of ecosystems, and between current and future users of ecosystems) or the mismatch between institutional mandates and the supply and use of ecosystem services.

It is therefore not surprising that the linkages to policy opportunities, as spelled in the goals of the pilot assessment, were far more general in Tanzania and Uganda.

The Tanzania assessment had three more purposes. It expected to:

- analyze conditions and trends and identify drivers of change in the assessment area, which will help to identify new poverty environment indicators (which

can be used to improve the national performance monitoring system established for MKUKUTA);
- develop scenarios to help local authorities and communities to conserve the Livingstone mountains ecosystem and improve human well-being;
- implement the specific sections of Tanzania's Environmental Management Act, which commits the National Environment Management Council to identify hilly or mountainous areas that are at risk from environmental degradation.

Uganda's additional purposes all referred to the PEAP implementation. PEI Uganda expected that the new and "deeper understanding" from the pilot assessment would help to make the case to prioritize environment in resource allocation and implementation of development policy. The terms of reference also mentioned that achieving Uganda's Millennium Development Goals (MDGs) would require a genuine appreciation of the links between ecosystem services and human well-being (which could be provided by a pilot ecosystem assessment). PEI Uganda also hoped that an ecosystem assessment at different scales would provide a better understanding of how different processes (both ecosystem function as well as local people's access to resources, user rights and royalties) affect the availability of ecosystem services at different scales. This was based on some insights from the SAfMA study, which showed that policies that were implemented to secure benefits from ecosystem services at one spatial scale sometimes have negative impacts at another.

Both the Uganda and Tanzania assessment did identify opportunities to inform more specific policy processes or follow-up efforts. However, achieving these goals required a special focus by the PEI project coordinator and the assessment team leader to ensure that the assessment would reach audiences representing these different opportunities. They had basically two options:

- Produce a final assessment report that pays attention to these different constituencies by conducting relevant analyses and preparing key messages. In Tanzania, for example, the final assessment report could have highlighted, in a separate section or just a text box, how the findings from the pilot assessment would be useful to implement Tanzania's effort to restore and protect Tanzania's water catchments ("Urgent Strategy on Land Conservation and Water Catchments Programme"). The pilot assessment documented the increased use of wetlands for subsistence cropping in the study area (a result of demographic changes and land scarcity). Any additional influx of people resulting from the relocation of families from the upper catchments would therefore be associated with multiple impacts: positive local environmental benefits in the upper catchments, negative or positive well-being impacts on the families being relocated, and detrimental effects on wetlands and their ecosystem services in the pilot assessment area (if these new families choose to farm in wetlands).
- Produce additional summaries for specific audiences in addition to a generic assessment report. Staying with the Tanzania example, a short policy brief could have suggested new indicators and monitoring efforts for the MKUKUTA performance monitoring system. These new indicators would need to reflect location in the watershed (highland, hills, and lowland), capture both changes in human well-being and ecosystem

services supply, and pay special attention to the conditions and use of wetlands.

Tasks

All three terms of references included almost the same list of tasks for the assessment team (see Table 8). Rwanda mentions explicitly efforts for outreach, engagement, and dissemination (because PEI wanted them to share preliminary results with the ongoing EDPRS process). Tanzania commits the team explicitly to produce a report and policy briefs.

The tasks are focused greatly on the training, research, and the specific types of analyses. None of the terms of references called attention to the review process in a separate task (an essential component of the Millennium Ecosystem Assessment). Nor do they suggest more targeted analysis and summaries to inform more specific policy processes or follow-up efforts.

Table 8 Tasks listed in the terms of references for the assessment teams

Tasks	RW	TZ	UG
Participate in preparatory training workshop	✓	✓	✓
Literature review of existing data, reports, and assessments (including "grey literature")	✓	✓	✓
Review of the MA tools and methodologies	✓	✓	✓
Map out on-going initiatives in the district and explore collaboration for data collection	✓	✓	✓
Identify the assessment area and scale for analysis taking discussion from training workshop into consideration	✓	✓	✓
Identify the current conditions and trends of ecosystems, ecosystem services and their impacts on human well-being		✓	✓
Analyze the links between human well-being and ecosystem services at two scales	✓	✓	✓
Identify drivers of ecosystem change	✓	✓	✓
Identify the plausible future changes in ecosystems (scenarios), the demand and supply of their ecosystem services and their consequent changes in human well-being		✓	✓
Propose and evaluate policy options for sustainable environmental management and improved human well-being	✓	✓	✓
Produce a report on the above and submit to the client for review and publication		✓	
Produce policy briefs to enhance decision-making at local and national levels		✓	
Outreach and engagement	✓		
Dissemination of information about assessment process	✓		

Outputs

All three assessments envisioned similar outputs in their terms of references. Only Rwanda mentions a review process and data repository explicitly as an output. Rwanda and Uganda originally planned a separate summary report for decision reports. This output was subsumed in the executive summary for the assessment report.

The rationale for a separate summary for decision-makers in the terms of reference was to reach this audience more efficiently. It was assumed that this would simplify the task for the assessment team, which could focus then on a more technical report. The global Millennium Ecosystem Assessment, for example, produced multiple written products: detailed technical reports (reflecting different working groups on ecosystems, scenarios, and policy responses), an overall synthesis for policymakers, a summary statement from the Assessment's board, and targeted synthesis reports that

interpreted the assessment findings for specific audiences such as the business community and international conventions (on biodiversity, wetlands, and desertification).

Table 9 Envisioned and actual outputs

	Rwanda	Tanzania	Uganda
Envisioned outputs in the TOR	- Draft and final assessment report - Summary report for decision-makers - Review process - Data repository	- Detailed draft and final assessment report - Policy briefs	- Detailed draft and final assessment report - Summary report for decision-makers
Actual outputs	- Report with summary - Review process	- Report with summary	- Report with summary - Review process - Policy briefs (drafts)

Evaluation of the methods used in the pilot ecosystem assessments

All three pilot studies collected primary data at local scale. A combination of rapid rural assessment and participatory rural appraisal techniques was used to obtain qualitative information at local scale. Table 10 summarizes the main data collection techniques:

Table 10 Primary data collection methods

	Tanzania	Rwanda	Uganda
Focus group discussion	✓	✓	✓
Personal interview of sampled households with questionnaire	✓	✓	✓
Transect walk and drive	✓	✓	✓
Key informant interview	✓	✓	✓
Participatory mapping		✓	✓
Seasonal calendar		✓	
Matrix scoring and well-being ranking	✓	✓	

All assessment teams conducted a literature review and used secondary data and studies to describe conditions of ecosystem and human well-being at district scale. The assessment teams obtained remote sensing imagery and readily available land cover data to examine land use and land cover change in selected districts of Tanzania, Uganda, and Rwanda. All assessments incorporated census data do describe population distribution and trends.

The Tanzania report emphasized primary data in its description and analysis. Use of information from secondary sources was more limited: in addition to the land use analysis and general demographic trends for the district, the authors incorporated general reference information on climate, topography, soils, and vegetation types for the pilot district. It would have been instructive to readers to compare the observation at local level on changes in the supply of ecosystem service with other monitored information from secondary data sources such trends in rainfall, stream flow, agricultural output, or energy use. Similar secondary data on human wellbeing trends would have put the primary observations in the six villages into a more appropriate context.

The Uganda pilot assessment report used more secondary information in its assessment report than Tanzanian report. To describe the status of human well-being

in the three districts, the Uganda assessment used various health indicators, the Human Development Index, measures of access to water and sanitation, and poverty levels. Information on food balance trends was used as input to formulate the scenarios.

The Rwanda report presented the most comprehensive set of ecosystem and human well-being indicators from secondary sources. These included: precipitation, food security, detailed population density and migration trends, water stress trends, comparison of crop productivity, fishing, food insecure households, nutritional indicators (various), seasonal prices (trends) of food crops, changes in land holdings, changes in water levels of lakes, sources of drinking water, water sources, recommended water requirements, environmental health measures, forest area, national wood demand, and charcoal prices. These indicators represented various aspects of ecosystem service supply and use.

Comments from review workshop

Participants at the review workshop had suggestions how to improve the assessment process and establish more effective assessment teams. They also commented on improving the terms of reference and overall planning process:

Assessment process

- During the start up phase, a steering (advisory) group can increase the legitimacy and relevance of the pilot ecosystem assessment by formulating key questions that need to be answered by the assessment. This will focus the pilot ecosystem assessment on the most urgent policy questions and provide an issue-oriented template to outline the assessment report or to produce a final summary of the ecosystem assessment.
- Be realistic and make sure the rationale for undertaking the pilot ecosystem assessment is clear. Identifying the most relevant policy and decision-making processes at the preparation stage can help keep the project team focused on making the 'right' impacts.
- Ensure comprehensive scoping and consultation before starting a pilot ecosystem assessment.
- Identify the demand for an ecosystem assessment and potential policy impact first. Involve policymakers early in the process and adapt the subsequent pilot ecosystem assessment methodology (e.g., primary data collection, data integration, and analysis) to address these policy questions.
- More time and resources are needed for improved planning than was allocated in the three pilot countries.

Assessment team

- Using a smaller assessment team increases focus and makes the management of the team easier.
- The team should have diversified skills (with communications experts, for example).
- It is important to tailor the teams to the country capacity and resource (financial and time) constraints.
- The PEI project manager for the pilot ecosystem assessment (in close collaboration with the ecosystem assessment team leader) needs to be pro-

active in giving strategic direction to the pilot ecosystem assessment and ensure proper engagement in the chosen policy process.
- Ensure clear definitions of team roles and responsibilities.
- The pilot ecosystem assessment team leader should be able to directly subcontract some tasks. Working with one organization that can provide multiple expertises to the assessment can be more management efficient.

Project plans and terms of reference

- PEI should help to develop more comprehensive and realistic project plans for the pilot ecosystem assessment that must include all necessary steps to produce an assessment, build ecosystem assessment capacity, and have policy impact. It should include: (i) start up activities (initial scoping and engagement, training, inception workshops, etc.); (ii) data compilation, field work and analysis; (iii) assessment report preparation and review (both assessment report and a separate summary for decision-makers); and (iv) dissemination and communication of results. PEI will need to produce written plans and multiple terms of references (e.g., assessment team, international advisor, communication expert, etc.) rather than just a single terms of reference for the assessment team.
- The plans for a pilot ecosystem assessment can focus on key sectors and consider sector processes as well as higher level PRSPs as entry points to achieve results.
- The project plans for the pilot ecosystem assessment (and the associated terms of references) may need to reflect on different kinds of 'products' as outputs depending on where the pilot ecosystem assessment needs to influence: local level or central level or decision-makers at different policy levels.

Other activities supporting the pilot ecosystem assessment

- Encourage countries to develop new ecosystem information as a follow-up to the pilot ecosystem assessment. This can be done either through better use and integration of secondary data or new fieldwork and data collection efforts.
- Compliment the pilot ecosystem assessment with other studies and activities that make a case for sustainable management of ecosystem services and highlight ecosystem and human well-being linkages. This includes economic analyses of ecosystem services and civil society engagement to promote the concept of ecosystem services.

III. Capacity Building and Knowledge Transfer in the Three Pilot Countries

In 2005, the United Nations Environment Programme (UNEP) through the United Nations University (UNU) contracted authors from the Millennium Ecosystem Assessment and Rhodes University (South Africa) to rapidly develop a training manual on ecosystem assessments. The purpose was to produce materials that could be used to enhance capacity to conduct and use ecosystem assessments in Africa.

Their effort resulted in a training manual (*Ecosystems and Human well-being: Conducting and Using Integrated Assessments*) based on the experiences of the Southern African Millennium Ecosystem Assessment (SAfMA) and the Millennium Ecosystem Assessment (MA). In September 2005, this manual was tested in a train the trainer course at Rhodes University, South Africa. Approximately 20 participants from seven African countries (Kenya, Mali, Mauritania, Mozambique, Rwanda, Tanzania, and Uganda) attended the five-day course.

In addition to the manual, the final training materials consisted of a DVD (containing the full course run at Rhodes University including the audio and presentation slides of each sub-module), printed reports from the Millennium Ecosystem Assessment (SAfMA and MA), and other reading materials. Some of these training materials were subsequently used for the training at the inception workshops for the three pilot assessments.

This section assesses the quality of the training modules and how the training contributed to capacity building and knowledge transfer in the pilot countries. It concludes with a summary of comments on these issues from the review workshop.

Quality of the modules developed for the training course in South Africa

Content of training modules and course

The training materials explain assessment concepts and approaches and highlight the links between human well-being and ecosystem services. The manual consists of different sub-modules which are introduced to students during a five-day course. Topics covered at the course in South Africa include:

- Day 1 History, context and definitions of ecosystem concepts
  Students learned about different conceptual frameworks to carry out an assessment including the one developed by the Millennium Ecosystem Assessment. Using the examples from the SAfMA study, the presenters demonstrated how an ecosystem assessment can provide information that is relevant for alleviating poverty and improving human well-being.
- Day 2 Introduction to approaches for assessing conditions and trends, scenarios, and responses
  Participants learned how the SAfMA study had assessed conditions and trends for ecosystem services, developed scenarios, and identified possible policy responses. This sub-module also demonstrated how SAfMA had synthesized data and research findings. Training materials summarized, for example, how SAfMA authors had identified hotspots and key resource areas, conducted a synthesis of 49

food security studies, developed a new method to assess biodiversity (biodiversity intactness index), and examined trade-offs between different ecosystem services (using the concept of irreplaceability of an ecosystem service).

- Day 3 Field trip
  Students carried out field work at one of the SAfMA community assessment sites. Participants were divided into four groups. The teams used rapid rural assessment and participatory rural appraisal techniques to obtain information about the ecosystem services used by the community and their level of human well-being. Each team presented their experiences to other participants.
- Day 4 Experiences from the global component of the Millennium Ecosystem Assessment
  The day consisted of two sessions. In the first session, the presenter showed how the global component of the Millennium Ecosystem Assessment made the connection between ecosystem services, poverty alleviation, and human well-being. The second session shared examples how the Millennium Ecosystem Assessment tried to communicate with and influence decision-makers such as different global conventions and the business community.
- Day 5 Organizing and offering a training course
  Students learned how to organize and plan a training course.

Participants were encouraged to read background materials for the formal sessions during evenings. They had to complete individual (e.g., produce maps of terrestrial and aquatic ecosystems) and group assignments (e.g., carry out field work in a local community) during the training course. Each participant was given an assessment task to be completed within four weeks after the course (in order to obtain a final competency certificate indicating successful completion of the training).

Observations on the quality of the training modules and course

The training modules and course represented the first ever attempt to communicate the Millennium Ecosystem Assessment experiences and build expertise on conducting ecosystem assessments. The materials were produced quickly with its authors acknowledging that their efforts were not exhaustive and represented a first step.

When the evaluator interviewed one author and one reviewer of the training material, they both felt that the manual needed more work – with additional resources and more time its quality could have been further improved. However, at that time in 2005, the team that had carried out the southern African ecosystem assessment had disbanded, making it difficult to produce a revised version.

It also has to be kept in mind that the authors of the training materials did not have PEI's broader mainstreaming objectives in mind when they designed the respective modules. The training manual is focused on how to conduct an ecosystem assessment using the Millennium Ecosystem Assessment approach (which is useful to investigate the linkages between ecosystem services and human well-being). The training materials provided little guidance on how to place an ecosystem assessment into a broader policy context (although an attempt was made to introduce some global

examples) and conduct it in a way so that the process of the assessment and its findings become relevant for and are being used for poverty reduction efforts.

Despite these caveats, the training module and training course at Rhodes University had the following strengths:

- Communicated all the main concepts, approaches, and findings from the Millennium Ecosystem.
- Shared some of strongest examples from the SAfMA reports.
- Introduced personal experiences from the SAfMA assessment team.
- Provided hands on experience in local data collection methods.
- Prepared and motivated participants to carry out the research for an ecosystem assessment at local scale.
- Provided guidance on how to organize a training course.

Opportunities to improve future training modules

The training course in South Africa had a few limitations in light of PEI's objective of mainstreaming ecosystem services into national and local decision-making. The training did not prepare the assessment teams and the project coordinator sufficiently on the following issues:

- How to conduct assessments in locations with little data and less scientific expertise.
- How to integrate and analyze information from different scales and studies.
- How to prepare a final integrated assessment report.
- How to prepare targeted synthesis reports to reach different policymakers.
- How to put a pilot assessment into a broader decision-making context.

Some of these issues, for example how to make ecosystem assessments more relevant for decision-making, are discussed in the upcoming UNEP-WCMC training manual (*Ecosystems and Human Well-Being: A Manual for Assessment Practitioners*) and other handbooks such as WRI's *Guide to Ecosystem Services*.

Quality of the training

PEI Nairobi arranged for two types of training to prepare the assessment teams for their assignment:

- A five-day training in South Africa. It tried to prepare assessment practitioners to conduct their own assessment.
- A training at the inception of the pilot assessment. It was shorter in length and had multiple purposes.

The following section summarizes the perceptions from the interviews for the two types of training events, respectively.

Quality of the training course in South Africa

Three participants from each pilot country went to Rhodes University in South Africa in September 2005. Participants came from universities, government agencies and non-governmental organizations. To assess the quality of the training, the evaluator interviewed five participants: two from Rwanda and Uganda, respectively, and one from Tanzania.

The evaluator had not access to the final written evaluation provided by all the participants of the training course in South Africa. It would have been interesting to compare this formal evaluation with the perception of the five interviewees (who provided their observations three years after the course, making it somewhat difficult to recall details).

All five persons interviewed judged the training course in South Africa as worthwhile and would recommend the course. The training expanded their knowledge about the global and subglobal components of the Millennium Ecosystem Assessment. They saw the practical field work in a community as an essential part of the course. They learned how to assess ecosystem change with the help of community members and that such data collection can provide useful insights about ecosystem services and human well-being. The five interviewees categorized it as an intensive course providing them with detailed information, with one participant mentioning that there was "not enough time to practice what we have learned". All interviewees felt that five days was just the right duration for such a course. Of the five participants interviewed, only one person completed the assignment of conducting a theoretical case study within four weeks of the course. Others mentioned that this assignment was a too demanding considering their work commitments once back at home.

Quality of the training at the inception workshops

The evaluator discussed the inception workshop with all interviewees for this evaluation (see Appendix 2) to determine their perceptions on workshop quality. Only one country, Rwanda, asked workshop participants to complete a written evaluation of the training at the inception workshop.

The training at the inception was shorter in length and less detailed than in South Africa: 3.5 days workshop in Rwanda (Butare), 3 days in Uganda (Jinja), and 3.5 days in Tanzania (Morogoro). The assessment team in Tanzania stayed an extra day to continue their planning for the pilot assessment.

All three inception workshops tried to achieve two objectives:

- Introduce the upcoming pilot ecosystem to broad group of stakeholders who later could also be tapped during the review process and outreach and dissemination phase.
- Get the country assessment team focused on their new task and use input from workshop participants to help them define more specific boundaries for the pilot assessment (e.g., select the second scale and sites of the assessment and determine a priority list of ecosystem services).

By the time of the inception workshop, some of the large strategic decisions for the pilot ecosystem assessment had been made such as the selection of district(s) or ecosystem type (regional scale) and the members of the team charged with the task to conduct the assessment. The inception workshop was the first opportunity for the assessment team to work together as a team.

All of the workshops had broad participation including the assessment team, international experts, and stakeholders with an interest in the results of the study. In Uganda and Rwanda about 30 participants came to the workshop. In Uganda

participation was even higher (50 persons), because organizers felt that this would help to raise awareness about ecosystems services more broadly.

The workshop was interactive and got participants involved. The workshop program varied slightly between the three pilot countries but covered common ground (see Table 11). All workshops included an overview of the PEI and description of the purpose of the pilot assessment. They all had presentations that introduced the background, context, and more theoretical aspects of an ecosystem assessment. Participants learned how the ecosystem assessment for southern Africa had provided new insights for policymaking. A large number of the presentations focused on the

Table 11 Inception workshops – participants, length, and main activities

	Rwanda	Tanzania	Uganda
Participants			
Number	~ 30	~ 30	~ 50
Government National	✓	✓	✓
Government Local	✓	✓	✓
Civil society	✓	✓	✓
Universities and research community	✓	✓	✓
Private sector	✓	✓	✓
Experts with ecosystem assessment experience at subglobal scale	✓	✓	✓
Other international experts	✓	✓	✓
Length	3.5 days	3.5 days + 1	3 days
Written evaluation of workshop	Yes	No	No
Main activities during workshop			
Introduction to the MA	✓		
History, context and definitions of ecosystem assessment concepts	✓		
The MA conceptual framework		✓	
MA findings		✓	
Ecosystem assessment examples from SAfMA		✓	✓
Methods and approaches (conditions, trends, trade-offs)	✓		
Drivers of ecosystem change			✓
Developing and communicating scenarios	✓	✓	✓
Response options for ecosystem services and human well-being	✓		✓
Relevance of an ecosystem assessment to poverty reduction	✓	✓	✓
Communicating with and influencing decision makers (EDPRS)	✓		
Maximizing the impact of ecosystem assessments – MA experience		✓	
Desk study on poverty and ecosystems			✓
Review of ecosystem management in Tanzania (workshop report)		✓	
Examples and applications from the MA	✓		
Video of field exercise in Cathcartvale, South Africa	✓		
Experiences with ecosystem assessments in Rwanda		✓	
Experiences with ecosystem assessments in Uganda		(✓)	
Field work	✓	✓	✓
Criteria for designing and selecting sites for pilot assessment			✓
Proposed methodological framework for the pilot assessment		✓	
Setting the scene for the pilot assessment	✓		
Background on district examined in the pilot assessment	✓	✓	
Identification of key assessment questions & methods	✓		
Way forward (next steps)	✓	✓	✓

more practical aspects of an assessment including main assessment tasks, methods, and scenario development. The assessment teams had a chance to present an outline of their workplan and get guidance on selecting the sites for the local scale and identifying priority ecosystem services. The Tanzanian workshop had scheduled presentations from the pilot assessments in Rwanda and Uganda. All three workshop programs included a short field exercise which collected ecosystem services and human well-being information from a nearby local community.

Feedback from participants of the inception workshops

A written evaluation of the workshop was only available for Rwanda. Overall, the reviews from the participants were positive. More than 60 percent of the persons that filled out an evaluation strongly agreed that this was a worthwhile course and that they would recommend the course.

Interviewees in Nairobi and the three pilot countries expressed similar positive perceptions about all workshops. They felt that participants and proponents of each assessment expressed considerable enthusiasm for the pilot study. One participant of the Tanzania workshop thought that the participation from other PEI pilot assessment countries was especially enriching and provided a great opportunity to share country experiences, learn about challenges, and compare materials such as terms of references or questionnaires.

One person mentioned that the training at the inception workshop alone was not enough to prepare the assessment team members for the pilot assessment, especially if the person had not background in natural resource issues. He felt that the more in depth training in South Africa was the more appropriate preparation.

The Rwandan workshop participants also provided detailed written comments:

- "There was not enough time for the field trip. It was further suggested that an area with a critical ecosystem be selected for this purpose in the future.
- Presentations should include more practical examples, more local examples, and greater relevance to Rwanda and Bugesera.
- More discussion time should be allowed.
- Ecosystem terms should be defined for the benefit of those who do not have an ecological or natural science background.
- Political decision-makers should be invited to this course.
- Certificates of attendance should be given."

Impact of the training in South Africa

The expectation for the South Africa training was that its graduates would set up the pilot assessments in the country, support or become a member of the assessment team, train members of the assessment team, or evaluate and review work of the assessment team. Training course graduates played all of these roles in the three pilot countries.

In Rwanda and Uganda, respectively, all three participants from the South Africa training workshop helped to conduct the inception workshop. In Tanzania, one participant from the South African training became one of the lead organizers of the inception workshop. Participants from the South African training course were involved in selecting the regional study sites for the pilot assessments in Tanzania and Rwanda.

Of the three participants from each pilot country, none joined the assessment team in Rwanda, one joined the assessment team in Tanzania (PEI project coordinator), and two joined the assessment team in Uganda (faculty members at the university and the PEI project coordinator).

The training in South Africa helped the Tanzanian PEI project coordinator to become a better spokesperson for the pilot ecosystem assessment and the usefulness of an ecosystem services approach. He took on a leading role in the assessment and conducted the short field exercise at the workshop. Some of the ideas from the training made it into the rapid assessment of mountain ecosystem in Tanzania and a review of the status of UNESCO's Man and Biosphere Reserves in Tanzania.

While two participants from Rwandan government agencies (Rwanda Environment Management Authority and Ministry of Finance and Economic Planning) did not become lead authors for the Rwandan pilot assessment, they still supported the assessment with advice and reviews. They are now champions for ecosystem assessments in the country. Both value the strength of the Millennium Ecosystem Assessment conceptual approach, especially the importance of drivers of ecosystem change and the linkages between ecosystem services and human wellbeing. One participant was able to use some of the ideas from the training in his subsequent work of establishing Rwanda's process for Environmental Impact Assessments (e.g., how to talk to clients, how to set up a public participation process, and how livelihoods, the private sector, and the economy all are dependent on ecosystem services).

Opportunities for improving training at the inception workshop

Interviewees mentioned a few opportunities to improve the training at the inception workshop. They include the following activities:

- *Improving presentations and training materials for inception workshop*
  The participants from the Rwanda assessment had very specific recommendations. Some of these may be useful when preparing future inception workshops. They suggested:
  - "The trainer(s) need to make presentations available in advance for photocopying and for distribution along with the other training materials at the beginning of the course. That the presentations did not exactly match training materials was particularly a problem given the bilingual context of the course and the need for translation.
  - In addition, because of the translation, presenters need to make presentations more slowly; this should be considered in allocating the time budget for the program.
  - A glossary of ecosystem terms and definitions should be presented (this is included in the training materials).
  - It is essential that adequate quality control is done before presentations are given, and more guidance may need to be provided on presentations prepared by newly-trained presenters. I would recommend that in most cases these presentations should not include SAfMA examples but rather draw from the presenters' own experience."
- *Increasing preparation for inception workshop*
  Two interviewees from the assessment team mentioned that they would have benefited from an inventory of existing information for the proposed pilot

location, right at the time of the inception workshop. This inventory should not only include an overview of existing studies but also cover databases (census, household surveys, etc.), satellite imagery, and maps. Future pilot assessments may want to invest into such early preparatory work. They may also need more preparatory time to obtain stakeholder support and place the pilot assessment on the right institutional track to support use of assessment results and follow-up activities (one project manager felt that some of the preparatory work for the pilot assessment was rushed).

- *Separating more clearly between stakeholder and technical component during inception workshop.*
  Interviewees mentioned that it is difficult for policymakers to attend a multi-day workshop. It may be more advantageous to separate more clearly between the stakeholder component and the technical component of the workshop. It was suggested that the workshop could start with one day of briefings for a wider stakeholder group and then concentrate separately (for two to three days, perhaps) on the work the assessment team has to complete (perhaps with a few highly motivated senior advisors or users participating as well).

Comments from review workshop

Participants at the review workshop provided comments on how to improve the training modules and who to invite for the training. They felt that PEI should plan capacity building efforts more deliberately, both during and after the pilot ecosystem assessment exercise, and identify opportunities for knowledge transfer more systematically:

Training modules

- Training should cover data collection, data analysis, and dissemination and communication of results. It should also provide guidance on how to conduct an assessment in countries with limited data and expertise.
- PEI should consider developing a training module that explains how to influence policy processes.
- More technical training is needed to explain the underlying concepts and the process of a pilot ecosystem assessment.

Target audience for training

- Training modules should be customized to the capacity needs within a country.
- Policymakers and planners should attend selected training modules, in addition to the assessment team.
- With limited resources, it is better for PEI to target first potential champions of an ecosystem assessment (e.g., senior policymakers) and the pilot ecosystem assessment team. Training at local level (e.g., districts or village) or the private sector can be included once new resources become available or if the pilot assessment produces specific outputs useful for these target audiences.

Capacity building during the pilot ecosystem assessment exercise

- There is a need to better integrate a mentoring or support function (technical assistance) throughout the different stages of the pilot ecosystem assessment,

from the scoping and planning step to the final dissemination of the results of the pilot ecosystem assessment.
- Training should be a step-by-step process rather than a one off event, e.g., initial classroom training should be combined with on the job training and technical backstopping during the ecosystem assessment.

Capacity building beyond the pilot ecosystem assessment exercise

- Capacity building for the pilot ecosystem assessment should link better to other capacity building initiatives (e.g., similar initiatives funded by donors) in the country such as environmental reporting, ecosystem management, ecosystem monitoring, university and science training, and efforts to establish regular comprehensive ecosystem assessments.
- PEI could foster demand for a pilot ecosystem assessment by developing the capacity of local communities to use the results of a pilot ecosystem assessment in local planning and zoning efforts.
- Pilot ecosystem assessments could be more effective by better involving civil society organizations, local communities, and universities (as was done in Uganda). It is important to link new pilot ecosystem assessments with other countries that have undertaken ecosystem assessments.

Opportunities for more systematic knowledge transfer

- Pilot ecosystem assessments should be part of a 'knowledge network' that becomes part of a wider process of knowledge and capacity building to assess ecosystems and understand poverty environment linkages (ecosystem assessment 'stewardship').
- PEI should focus its attention more on the dissemination of the findings and recommendations of a pilot ecosystem assessment, perhaps by targeting different user groups and decision-makers with specific summaries and products.
- There is a need to establish improved and regular country-level reviews of the results for these pilot ecosystem assessments to guide and improve future assessments.
- There is an opportunity of holding a WCMC-led regional workshop based on their MA Manual for PEI countries. This should be further explored in the new year between PEI, DEPI, and WCMC.
- PEI may want to invest in specific monitoring and evaluation steps during the pilot ecosystem assessment to improve future pilot ecosystem assessments, but also to establish regular country-led efforts to assess its ecosystems at various scales.
- PEI should have a technical support function common to different countries to foster lesson learning and sharing within PEI. Such a function can also help with the review process during the pilot ecosystem assessments.

IV. RESULTS AND IMPACTS OF THREE PILOT ASSESSMENTS

This section examines the quality of the pilot ecosystem assessment reports. It also summarizes how information and recommendations from the pilot assessments have been used in decision-making and looks at the costs of these assessments. Comments on these issues from the review workshop conclude this section.

Quality of the pilot ecosystem assessment reports

None of the pilot assessments prepared a separate summary for policymakers as originally envisioned. All assessments limited themselves to an executive summary. The Uganda team has now drafted four-page briefs based on the assessment material to reach selected policymakers.

The three pilot assessment reports differ not only in length (Rwanda 93 printed pages; Uganda 71 manuscript pages, single spaced; Tanzania 64 manuscript pages, 1.5 line spacing) but also in their approach and suitability for PEI's mainstreaming effort. Since the assessment was planned as a test without a model for a pilot assessment report appropriate for PEI's mainstreaming objective, authors decided to scale back from the originally provided outline which drew from comprehensive examples in the Millennium Ecosystem Assessment. Based on their understanding of purpose and audience and the remaining time and resources, the authors defined the scope of their reports. This resulted in different final written products for the three countries.

The Tanzania report provides useful facts and perceptions from a local perspective and summarizes findings from the household survey, interviews, and focus group discussions. The report focuses on changes in ecosystems, ecosystem services, and perceived drivers of ecosystem change in the six sample villages. It provides little on policy analysis, links to decision-making, and links between ecosystem services and human well-being. As a summary of research, it is therefore closer to an environmental report, albeit one with an ecosystem services perspective. In its current format, it is less useful to build a case for mainstreaming ecosystem services in poverty reduction strategies (PEI's mandate).

It is clear from the Rwanda report that the authors tried to influence priorities for decision-makers discussing economic development and poverty reduction issues. They emphasized linkages between different ecosystem services and between ecosystem services and human well-being and tried to compile as many examples and facts from their field work and secondary sources. They covered drivers and scenarios as suggested by the originally provided outline, but scaled back the scope of these sections keeping them simple. The organization of material and writing style borrows more from the approach taken by the global synthesis report of the Millennium Ecosystem Assessment. It thus fits closer with PEI's mandate of mainstreaming environmental issues in national strategies.

The Uganda report follows most closely the originally provided outline for a technical ecosystem assessment report. The publication gives equal weight to issues related to ecosystem change, use of ecosystem services, drivers of ecosystem change, links between human well-being and ecosystem change, scenarios, and policy response options. It is an amalgam of new observations from the study sites and existing

information on Uganda's natural resources and environmental policies. The team benefited from Uganda's strong state of the environment reports at national and district level and previously completed policy analyses. The publication, for example, drew from formerly developed scenarios and existing discussions of policy responses supporting sustainable development.

This, however, resulted in one shortcoming for the Uganda report: The analyses and recommendations, although comprehensive and broad, are most useful for an analyst concerned with influencing long-term strategic thinking. They are less useful for policy-making in the immediate future. The report could be strengthened by focusing more on the unique perspective of an ecosystem assessment. It could highlight, for example, a few important ecosystem human well-being linkages, identifying gaps in information and knowledge, and formulate key messages for policymakers targeting selected high profile policy issues during the next planning and budgeting cycles.

It is difficult to establish an appropriate and fair reference point to judge the quality for these reports. It all depends on the purpose of the pilot assessment. The purpose of a pilot assessment could be defined more narrowly (produce a technical sound ecosystem assessment report that follows closely the guidelines established by the Millennium Ecosystem Assessment) or more loosely (produce an assessment report that communicates important concepts and facts about ecosystem services and human well-being and is highly relevant for poverty reduction efforts).

Future ecosystem assessments supported by the PEI need to very clear about their purpose and then tailor their outline and writing accordingly. Three different types of written reports from the Millennium Ecosystem Assessment can provide a useful point of reference on quality, scope, and audience. They include:

- Technical reports from the Millennium Ecosystem Assessment such as the SAfMA Integrated Report which summarized the findings from various assessment reports at local, river basin, and regional (multi-country) scales.
- Global synthesis reports from the Millennium Ecosystem Assessment that aimed at reaching policymakers and other decision-makers.
- Pilot ecosystem studies that tried to test ideas, communicate important concepts, and build stakeholder support such as the one in southern Africa or in other countries such as Norway.

Instead of using an absolute reference point to assess quality, the following discussion will compare the three pilot assessments highlighting some of the strengths and limitations of selected sections of the report. Based on this comparison, some comparisons can be drawn to guide the preparation of reports for future pilot ecosystem assessments.

Quality of executive summary

There are different personal philosophies on what should be covered in an executive summary and what should be its appropriate length. A few general conclusions from the comments in Table 12:

- The Rwanda summary is too short. It misses important issues and undersells the report.
- The Tanzania summary covers all issues from the report. The scope of the report, however, is narrower than the other two reports. As a consequence

links between changes in ecosystem services and human wellbeing are not covered adequately to help in PEI's mainstreaming effort.
- The Uganda summary, longest in length, covers all issues from the report. It could be strengthened by being more focused.

All three executive summaries would benefit from stronger policy relevant messages. Mixing a summary for policymakers and an executive summary highlighting key findings from the assessment is a however a challenging task and based on the experience from the pilot countries did not work so well.

Table 12 Comparison of executive summaries

Strengths	Limitations
Rwanda	
- Highlights links between drivers of ecosystem change and well-being - Links food insecurity to land degradation and to inadequate rainfall (linked to prolonged drought) - Mentions that capacity of ecosystem to provide food has changed, which has triggered changes in consumption patterns and livelihood strategies	- Very short (one page) - Could have highlighted key findings from report in more detail especially emerging issues and trade-offs - No summary on water - No summary on firewood
Tanzania	
- Covers three main ecosystem types: agroecosystems, forest ecosystems, and aquatic ecosystems (lakes, rivers, and springs) - Highlights declines in forest conditions, agroecoystems, and aquatic ecosystems - Perceived drivers of ecosystem change (new information from community survey)	- Provides little detail about ecosystem services - Potential links between changes in respective ecosystems overlooked (e.g., land cover change → runoff/infiltration → groundwater levels) - Nothing on human wellbeing - Links between changes in ecosystem services and human wellbeing not covered
Uganda	
- Linking poverty and environment: good introduction and rationale - Ecosystems and their services: freshwater, forest, agrocecosystems, and grasslands; general trends, facts on use (ecosystem services), mentions implication for wellbeing - Drivers of ecosystem change – explains both selected indirect and direct drivers - Poverty–environment linkages: good section; links back to drivers; medium to longer-term outlook; mentions that "safeguard resources" (wetlands) are overexploited (Butaleja) - Comprehensive set of recommendations	- Recommendations too broad (ecosystem management, education policies, population policies, stronger resource rights, payment for ecosystem services, etc) ; more narrow and prioritized recommendations

Readability, use of data, maps, figures and photos

All reports provide new data on ecosystems and ecosystem services use from their field studies. The writing style for most parts is clear for all of them. The Rwanda report could have benefited from a final copyediting to smooth out some awkward language and incorrect referencing of sections and tables in some sections.

All three reports make good use of maps to identify site locations and show land use changes. The same applies for graphs and tables. The graphs for the Tanzania report could be strengthened by grouping the data for the six villages into the three elevation

zones (and not ordering them alphabetically). Some of the tables in the same report need a final copyedit to correct titles and labels. The photos in the three reports leave the reader with an informative portray of selected ecosystems, ecosystem services, and participatory data collection efforts in the study area.

Introductory sections: background and methods

All three reports state their purpose adequately drawing from materials in the concept notes for the pilot assessment. The Uganda and Rwanda reports are more useful for a general audience than the Tanzania report because they assume that readers are not familiar with an ecosystem assessment. They explain important concepts such as ecosystem and ecosystem services. The Rwanda report makes good use of the core questions from the Millennium Ecosystem Assessment Synthesis report in its introduction.

The section on methods covers all necessary issues. Rationale for site selection and description of study sites are covered well in all three reports. The Uganda reports mentions a method to determine levels of uncertainty. However, levels of certainty are not expressed in the later chapters (the Millennium Ecosystem Assessment developed a specific terminology and guidelines on using these terms throughout their assessment reports).

Section on ecosystems and ecosystem services

The three reports provide good material on ecosystems and ecosystem services. They differ, however, in the way they organize their material on ecosystems and ecosystem services.

The Rwanda report organizes its material first by three ecosystem services (food, water, and fuelwood). For each ecosystem service, the authors then discuss (1) conditions and trends of the ecosystem(s), (2) use of ecosystem services, (3) links to human wellbeing, and, (4) response options.

The Tanzania report organizes all material sequentially. It starts with a descriptive section of the three major ecosystems in the study area. This is followed by a section summarizing which goods and services the six villages obtain from these three ecosystems. Next are two sections, one on ecosystem trends and one on drivers of ecosystem change, all based on community perceptions. It concludes with a discussion of land use change. The structure is easy to follow. This section begs for additional analysis: Why are there differences between the six villages? How do the perceived trends at community level compare to district trends? Is there a match between the perceived drivers of ecosystem change and the perceived changes in ecosystems?

The Uganda report structures its findings first by four major ecosystem types. The authors then highlight the major ecosystem services within in each ecosystem type, often further differentiating by District. This covers all the issues systematically but is cumbersome and not always reader friendly.

Section on most critical factors causing ecosystem change

The Uganda report discusses drivers of ecosystem change most comprehensively. It uses the same direct and indirect drivers as the Millennium Ecosystem Assessment.

The Tanzania report provides detailed information summarizing the perception in six villages. It would be interesting to examine to what degree local perception on causes of ecosystem change corresponds with monitoring information on the environment (NDVI, rainfall, streamflow, etc.).

Rwanda provides a short overview of selected drivers. The intent appears to be to make readers aware that some of the critical factors causing ecosystem change observed at district level are beyond the local scale. They cannot be solved by local actors alone and require interventions from multiple sectors and actors at multiple scales.

Section on poverty and environment linkages

The Uganda report has dedicated a separate chapter to this topic. The chapter provides a good overview covering some causes of poverty and different dimensions of human wellbeing. It discusses linkages drawing mostly from other studies and secondary sources (there appear to be no new insights from the research at local level on poverty environment links). The report makes good use of primary data when identifying sources of income and livelihoods in the respective districts. It also documents how ecosystem decline has exacerbated poverty and how poverty and low soil fertility is driving people to farm in wetlands.

The Rwanda report has no separate chapter on poverty environment linkages. The authors, however, discuss this issue adequately in a subsection of each ecosystem services chapter. These linkages are also brought up in a section on emerging issues, text boxes, and recommendations.

The Tanzania report presents data on the perception of household wealth status in the six sample villages. It does not cover poverty environment linkages in detail.

Section on scenarios

The Rwanda report limits itself to two simple scenarios. They are sufficient and remind policymakers about some of the main issues they should be thinking about. They use the Millennium Ecosystem Assessment's conceptual approach.

The Tanzania section on scenarios points out that population increases and poor farming techniques in Mbinga district will have negative environmental impacts. The authors also point out that environmental degradation in Mbinga district can be avoided by reducing the stress on ecosystems. These scenarios are relatively general, and with some additional technical advice, they could have followed the Millennium Ecosystem Assessment's conceptual approach more closely.

Uganda's four scenarios are very detailed and comprehensive. The authors borrowed material from the Africa Environmental Outlook report series, and the section highlights the links to human wellbeing (winners and losers).

Section on response options

In the Rwanda report, response options are discussed in the respective chapters on food, water, and fuelwood. In general, it is a good discussion of pros and cons of certain policy interventions (which in most cases refer closely to the earlier analysis

of conditions and trends of ecosystem services). One drawback of this approach is that the response options are scattered across the document requiring an extra effort by the reader to locate them.

The response options presented in the Uganda report are very broad. Many of them are almost generic response options that could have been discussed in Uganda's regular state of the environment report. They are, however, broadly grouped by drivers, linking them well to the discussion on the most critical factors causing ecosystem change.

The Tanzania report does not include a separate section on response options. Some policy responses, however, are included in the section providing recommendations.

Section on recommendations

Table 13 compares how the different assessment reports have prepared their recommendations. The table highlights some of the stronger points in this section and lists some opportunities for improvement.

Table 13 Comparison of recommendations

Strengths	Limitations
Rwanda	
- Conclusions cover important issues on ecosystem dependence, disproportional impact on the poor, linkages between ecosystem services (e.g., food production in wetlands) - Are focused and ranked (e.g., support integrated water and sanitation efforts, livestock for the poor, agro-forestry) and address important linkages	- Missed recommendation to support investment in water harvesting - Made no recommendation on filling gaps in information, research, and monitoring of ecosystem services
Tanzania	
- Useful separation into district and national level recommendations	- Missed opportunities to link to specific decisions or policies (e.g., What do these findings mean for the implementation of the "Urgent Strategy on Land Conservation and Water Catchments Programme") - Recommendations are broad and general; could have been linked much better to the analysis and findings from the previous chapters (perhaps more on ecosystem management)
Uganda	
- Broad and comprehensive recommendations	- Perhaps fewer and more focused recommendations highlighting the most important trade-offs between ecosystem services or the most urgent links between ecosystem change and human well-being - More explicit links to specific decisions or policies that have to be made in the next five years

Lessons learned from comparison of pilot assessment reports

A pilot ecosystem assessment has to restrict its scope by definition, but do so without sacrificing quality or relevance for PEI's mainstreaming objective. The following conclusions, drawn from the comparison of the pilot assessment reports, can provide

some insights on where to limit the scope of the assessment or how to boost the quality of future pilot assessment reports.

Think carefully about the purpose of the report and match with appropriate outline
Future PEI efforts need to work more closely with pilot assessment teams on an outline that links well to the overall purpose of the pilot study. The generic outline provided to the three assessment team was most appropriate if the goal was to produce a technical assessment report. In contrast, the outline and approach used by the synthesis report of the Millennium Ecosystem Assessment (*Ecosystems and Human Well-being*) uses a format targeting policymakers and decision-makers.

The strength of the Millennium Ecosystem Assessment synthesis report is that it translates the technical assessment language into questions more easily understood by a generally audience. They include:

- How have ecosystems changed?
- How have ecosystem services and their uses changed?
- How have ecosystem changes affected human well-being and poverty alleviation?
- What are the most critical factors causing ecosystem changes?
- How might ecosystems and their services change in the future under various plausible scenarios?
- What can be learned about the consequences of ecosystem change for human well-being at various scales?
- What is known about time scales, inertia, and the risk of nonlinear changes in ecosystems?
- What options exist to manage ecosystems sustainably?
- What are the most important uncertainties hindering decision-making concerning ecosystems?

Scaling back from the original comprehensive outline is appropriate for a pilot study
Two pilot assessments scaled back the scope of their reports, compared to the originally provided comprehensive outline:

- Tanzania limited itself to ecosystem change, changes in ecosystem services, and perceived drivers of ecosystem change. It did not cover poverty and ecosystem services linkages or response options (although some are included in the recommendations).
- Rwanda kept the sections on drivers of ecosystem change and scenarios short and simple.

It is important to remind pilot assessment teams that this is not a full ecosystem assessment. Resources for research, analysis, and writing all are more limited. Availability of secondary data and local expertise may be more constrained than for some of the studies within the Millennium Ecosystem Assessment. No pilot ecosystem assessment (assuming the same amount of resources as in the PEI countries) can adequately answer all the questions put forward in the Millennium Ecosystem Assessment synthesis report. While there are various ways to reduce the number of questions (and scale back the underlying research), from PEI's mainstreaming objective, it is important to keep a section that examines how ecosystem changes have affected human well-being and poverty alleviation.

Scenarios: keep it simple and work with expert

Producing good scenarios is as much a science as an art. The Millennium Ecosystem Assessment had a whole global working group dedicated to this task. Considering the resource limitations for a pilot assessment, it is more appropriate to cover only two scenarios (one representing business as usual versus one that reduces ecosystem pressure and introduces more sustainable ecosystem management) and link them, if possible, better to the observations from the pilot study area.

The training sessions in South Africa and at the inception workshop alone were not sufficient to prepare a novice to develop full scenarios (e.g., the scenario section in the Tanzania report did not follow the Millennium Ecosystem approach). Scenario development requires more technical support or past experience. The Uganda team could complete four different scenarios, only because they already had scenarios developed for the Environmental Outlook report series. The Rwanda assessment team spent a separate day with the SAfMA technical advisor to prepare two simple scenarios.

Making an assessment report policy relevant requires a special effort
Of the three reports, the Rwanda report is the most useful for PEI's mainstreaming effort. The authors employed the following techniques to become more policy relevant:

- Focused their report on linkages (between ecosystem services and between ecosystem services and human well-being).
- Identified main messages in a separate section.
- Identified a few emerging issues of high policy relevance (e.g., multi-sectoral interests in water resources - whose voice should be heard).
- Highlighted important trade-offs such as household energy and food production (soil fertility).
- Used text boxes to highlight important linkages and possible trade-offs (e.g., possible food security, migration, and HIV/AIDS linkages or the role of wetlands for regulating services, subsistence food production, and large-scale irrigated rice production).

Investments in review process, revisions, and writing support are worthwhile
The Tanzania report would have benefited from a more comprehensive external review process of earlier drafts. More specific technical advice discussing options for analyses, developing scenarios, and producing more policy relevant messages could have boosted the quality and usefulness for PEI efforts.

In Uganda, two external review drafts plus a rewrite by an editor with experience in Uganda' state of the environment reports were needed to produce the final report. A comparison of the different draft versions shows clear improvements in readability. Boosting the quality of the publication is a worthwhile investment, but this requires allocating time and resources for this step at the start of the assessment.

Use of assessment information and recommendations from the pilot assessments

Influencing policy and decision making processes and supporting efforts to mainstream environment in poverty reduction strategies was one of the main objectives of the pilot ecosystem assessment. The following is a summary of uses and results at national level in Rwanda, Tanzania, and Uganda, plus some examples at

local level, all mentioned during the interviews in September 2008 or in PEI staff presentations.

Rwanda

The Rwanda study was designed to share interim results with the EDPRS process, even before final publication of the assessment report. The assessment has achieved most of the milestones envisioned in the original assessment plan. The following examples of use have been mentioned:

- The pilot assessment provided local facts and case studies on ecosystem use and human well-being and was used for numerous presentations during preparation of the EDPRS.
- Results from the pilot studies helped to identify priorities within the environment sector during formulation of EDPRS.
- During formulation of EDPRS, government sectors asked PEI staff to provide technical briefing and mainstreaming tools. This resulted in establishing more inclusive EDPRS working groups.
- Results from the pilot assessment were instrumental in the analysis of existing planning mechanisms.
- The pilot study created demand for more integrated planning that will require more information similar to that from the ecosystem assessment.
- The study has strengthened the argument to require Environmental Impact Assessments for large irrigation projects in wetlands.
- Assessment results have prompted requests to government institutions in the environment sector for more detailed information and follow-up studies.
- Government institutions from various sectors and levels (statistics, agriculture, energy, water and sanitation, health, and local government) have asked the environment sector for assistance to fill knowledge gaps identified by the pilot study and also identified by an economic assessment.
- The debate on how to balance economic, environmental, and social considerations in national policy design, particularly on population policy and land reform issues, has gained momentum and moved now to more practical steps to address these issues.
- The PEI ecosystem assessment, combined with other PEI outputs (e.g., economic valuation study of wetlands), has played a key role in convincing policymakers in mainstreaming environment in the EDPRS.

Tanzania

In September 2008, the Tanzania report had not been released and distributed yet. PEI Tanzania had not formally shared interim results more widely or conducted stakeholder workshops at national and local level. Three uses could be gleaned from the interviews:

- Some of the ideas from the training in South Africa and the ecosystem management workshop in Tanga (both in 2005) were incorporated into the rapid assessment of mountain ecosystem in Tanzania and into a review of the status of UNESCO's Man and Biosphere Reserves in Tanzania.
- Concepts and observations from the pilot ecosystem assessment are being used in teaching courses given at the University of Dar es Salaam.
- One of the assessment team members is incorporating the field data into his dissertation.

Uganda

At the time of this evaluation, the Uganda assessment report had not been officially launched yet. The PEI team, being located at the National Environment Management Authority (NEMA), however, was able to inject ideas and facts from the draft report into selected processes which NEMA has participated in. PEI staff also has drafted policy briefs on key issues arising from the pilot assessment (covering topics such as water, land, demography, and climate change). The PEI team reported the following uses:

- Consultants and members of the working group preparing the Environment and Natural Resource sector paper for Uganda's PEAP Revision or National Development Plan process have used the pilot assessment report as one of the reference documents.
- Uganda's National State of Environment Report for 2006/07 used facts from the pilot assessment report to describe local conditions in the study area. NEMA has commissioned the preparation of the National State of Environment Report for 2008/09. One of the topics covered in the preliminary outline will be a specific section on ecosystem-human well-being linkages.
- The pilot ecosystem assessment is providing a useful context and local examples to NEMA staff coordinating the Authority's ecosystem restoration activities. It will also be useful to develop new payment schemes of ecosystem services such as hydrological services.
- NEMA has supported three districts (Nakasongola, Masindi, and Butaleja) in the Lake Kyoga catchment to develop district environmental policies based on the key findings of the pilot ecosystem assessment.
- NEMA has supported three micro level projects demonstrating some poverty-environment linkages (e.g., beekeeping to demonstrate two benefits: pollination and a new source of income) in the districts of Nakasongola, Butalejja, and Bududa where the assessment took place.
- Authors from the pilot assessment team, in collaboration with Makerere University Institute of Environment and Natural Resources (MUIENR), have developed a teaching module on ecosystem assessments and livelihoods. It is now part of a revised master of science in environment and natural resources curriculum at Makerere University. It is based on the Millennium Ecosystem Assessment approach and uses material from the pilot ecosystem assessment.

Results and impacts at local level

None of the three countries had organized their workshop to brief local stakeholders yet. However, the process of an assessment can raise awareness and influence perceptions. In fact, the value of participatory research as used in the pilot ecosystem assessment lies as much in the discussion it generates in the community as in the data and information it provides. Three examples of use resulting from the assessment process were mentioned during the interviews:

- *In Tanzania, government efforts to promote zero grazing livestock activities included two villages from the pilot assessment in their plans*
  One of the assessment team members from Mbinga District mentioned that some of the observations from the pilot assessment have influenced government efforts to promote zero grazing livestock activities. The assessment team found that zero grazing livestock raising was largely practiced in the comparatively better off highland zone of the pilot study area rather than the lowland zone. A government plan advocating zero grazing is

now targeting the lowlands in Mbinga District. Two of the lowland villages studied in the assessment were included in the government plans - one for October 2008 and the other some time in 2009.

- *Environmental education organization in Uganda is using an ecosystem services approach in its action planning at Subcounty level*
  Environmental Alert, an Ugandan, environmental education organization, has used the Millennium Ecosystem conceptual approach (provisioning, regulating, cultural, and supporting ecosystem services; drivers; linkages between ecosystem services and human well-being) in their own project supporting action planning at Subcounty level. By September 2008, the group had introduced the ideas and concepts of ecosystem services in three districts in West Nile Region, two districts in the Eastern Region, two districts in the Central Region, and two Districts in the Western Region.
  Environmental Alert was one of the groups that carried out the PEI supported awareness campaign on ecosystem services in the Subcounties studied in the pilot ecosystem assessment.
- *The District Environment Officer from Nakasongola (Uganda) shows greater appreciation of linkages between use of ecosystem services at different scales*
  The District Environment Officer from Nakasongala in Uganda reported that participating in the ecosystem assessment process has helped him better understand the linkages between local environmental conditions and actions at other scales. He mentioned how charcoal making in Nakasongala is linked to water levels in Lake Victoria. Over the past decade, charcoal makers have turned biomass from woodlands into charcoal, which drastically has changed land cover and locally available biomass in the district. Charcoal production in Nakasongala is driven by urban energy demand in Kampala. In the past years, urban users have increased their demand for charcoal considerably, when a drop in the level of Lake Victoria resulted in a lower electricity supply and load shedding.

Assessment costs

It was a challenge to determine the true costs for the assessments. The evaluator could only obtain general budget numbers from the national PEI workplans reflecting disbursed funds at the launch of each assessment. Each assessment budgeted about $US 100,000. Some of the costs such as printing of the report and dissemination workshops in Tanzania and Uganda may not have been accounted for yet and may be subsumed under outreach and dissemination efforts with Phase II (roughly covering a two-year period from 2007 to 2008) of the PEI country effort.

The total Rwandan assessment costs are also higher than indicated by the annual budget number. It does not include staff costs for Rwanda's PEI technical advisor who contributed directly to the day-to-day management, writing, review, and editing of the assessment report. A contribution at that magnitude did not occur in the other two countries.

Both Rwanda and Uganda benefited from external reviews by UNEP, PEI staff, and other experts at various stages of the assessment. These time commitments are not reflected in the annual country budgets, except for the international consultant advising the Rwanda team. These expenses for 33 days of advisory services from a

SAfMA expert are included in the $100,000. PEI Rwanda budgeted not only for expertise during the inception workshop and training, but also for additional time to advise on research design, review documents, and conduct two additional technical workshops to advance analyses and writing.

Analysis of assessment costs

Without detailed data on specific costs and lack of information on comparable pilot assessments, it is difficult to determine whether an investment of $100,000 represents an amount well spent. Despite these limitations, the following broad brush analysis related to costs can be carried out:

- Relative costs of the pilot assessments to other PEI efforts such as economic valuation studies.
- Comparative levels of cost effectiveness for the three pilot assessments using common criteria that define effectiveness in relation to PEI's mainstreaming objective.
- Comparison of the relative shares in the budget spent for field work versus analysis and report preparation

Comparison to other PEI activities

The costs of a pilot ecosystem assessment have been comparable to the amount PEI has spent on pilot economic valuation studies (about $ 80,000 to 100,000). PEI has used economic valuation studies to raise awareness about the importance and the relative value of selected ecosystem services in a pilot area. (These valuation studies are not comprehensive cost-benefit analyses to guide or prioritize a specific decision.)

PEI staff felt that a pilot economic valuation study is a worthwhile investment. Their justification is based on the personal experience that the decision-makers targeted by PEI—especially those in a ministry of finance—are more receptive to an economic argument made to justify better ecosystem management.

Both an economic valuation study and an ecosystem assessment can provide useful insights about the environment to decision-makers. Ecosystem assessments and economic valuation studies of ecosystem services, however, are not completely substitutable tools: an ecosystem assessment provides different information—especially on the linkages between human well-being and ecosystems.

A pilot ecosystem assessment can provide the same value for money as the pilot economic valuation study, if the ecosystem assessment achieves the following standard: salient and credible information that is easily understood by planners, economists, and other decision-makers. This in turn requires a strong commitment from PEI project managers to produce high quality products from the assessment and communicate the findings effectively to these users.

Comparison of three pilot assessments

To compare the three pilot assessments, some criteria can be identified that contribute to the cost-effectiveness of a pilot ecosystem assessment. The following represent characteristics that make a pilot assessment less cost-effective (in the short-term) in light of PEI's mainstreaming objective:

- A narrow academic exercise without policy impact.

- Lack of information and analysis on the linkages between ecosystem services and human well-being (or poverty).
- Lack of information and analysis on synergies or trade-offs between different ecosystem services.
- An assessment that only builds the capacity of the team carrying out the assessment.

By September 2008, PEI had received the most value for its money (see the criteria above) from the Rwanda assessment (national policy result; information on poverty – ecosystem services linkages; information on ecosystem services trade-offs). The Uganda assessment has been less cost effective because its main result so far is more indirect and long-term (the course at Makarere University continues to build capacity beyond the pilot assessment). The Tanzania pilot assessment so far has been the least cost effective from PEI's mainstreaming perspective.

Comparison of field work expenses versus analysis and report preparation costs
Although PEI could not provide comparable line item expenditures for the three assessments, a rough estimate can be made of the relative share for field work expenses. It is based on a general observation from censuses and household surveys in Africa, which shows that differences in logistical and travel costs can explain most of the differences in the total costs of a survey or census.

Due to the considerable travel distance, the highest number of local sites, and the decision to carry out field work during the dry and the rainy season, the Tanzanian assessment most likely had a higher share of costs related to travel and administering the field work, leaving fewer resources for analysis, integration, and report preparation. The Rwandan assessment could dedicate the largest share of their budget to analysis, integration, and report preparation, because of low travel and data collection costs. Compared to the other two countries, the Uganda assessment occupied a middle position with its ratio of field work expenses versus analysis and report preparation costs.

Opportunities to make a pilot ecosystem assessment more cost-effective
PEI obtains value from its investment in a pilot assessment, if the assessment has policy impact (e.g., influences a poverty reduction strategy or a planning process) and if it builds capacity. With greater policy impacts and more widespread capacity building, PEI receives a higher return for its investment.

PEI can obtain additional benefits from a pilot ecosystem assessment (and obtain a higher return for its investment) by investing in the following options:

- *Establishing long-term training and teaching*
  The experience from Uganda shows that participation of researchers from academic institutions can create the conditions to launch academic courses on ecosystem assessments. This additional benefit from an ecosystem assessment can be obtained with relatively little effort. It may just require participation of a researcher (and research assistants) from an academic institution. If that is not sufficient, a more specific engagement with an academic institution is needed to explain the purpose of an ecosystem assessment, describe the benefits of a new course, and share technical materials (questionnaires, data, etc.) and experiences from the assessment.

- *Coordinating plans for the pilot ecosystem assessment and the economic valuation study*
  Conducting the pilot ecosystem assessment and economic valuation in the same location could reduce data collection costs. Such coordination would also create synergies during outreach and engagement with policymakers.

PEI could also increase its cost effectiveness by exploring options to reduce the overall costs for the pilot assessment and by matching the scope and emphasis of an assessment with the level of mainstreaming of ecosystem services in the country. Two very preliminary ideas are discussed below.

- *Developing a less expensive tool to assess ecosystem services and human well-being*
  It is conceivable that PEI could develop a new ecosystem services assessment tool which would cost less than $100,000 and require less time than a pilot ecosystem assessment. This tool would use an ecosystem services approach for its assessment, but not cover all the elements included in the Millennium Ecosystem Assessment.

  The assessment would start with a quick analysis showing poverty ecosystem services dependencies using readily available information. WRI, for example, has tested successfully an *Ecosystem Services Review* tool with private companies. The same approach has also been applied by a public-private partnership for the restoration of the Puget Sound ecosystem (USA). Based on this initial analysis, the PEI project coordinator could then commission a few rapid information collection efforts to fill important gaps and obtain a more local perspective (this could include focus group discussions, transect walks, video testimony, etc.). Such a rapid ecosystem services dependency analysis could just provide enough information to influence the revision of a poverty reduction strategy devoid of environmental issues.

- *Matching the scope and emphasis of an assessment with the level of mainstreaming*
  So far PEI has not applied its two main analytical tools—pilot ecosystem assessments and pilot economic valuation studies—in a very strategic and coordinated way. Matching the tool to the situation on the ground—the level of mainstreaming of ecosystem services thinking—could improve cost effectiveness. The following examples explain this in more detail.

  The Rwanda case study has shown that a pilot ecosystem assessment can be influential in mainstreaming environmental issues. A comparison of the previous poverty reduction strategy (which did weakly include environment as a cross-cutting issue) with the revised strategy shows that the latest version incorporates a number of environmental issues relevant to the livelihoods of the poor. Based on the available information, it is difficult for PEI to determine whether the same result could have been achieved with a less comprehensive assessment (see discussion above on a rapid ecosystem services dependency analysis).

  In contrast to Rwanda, other countries may have already included various environmental issues (such as water and sanitation issues, wetland degradation,

deforestation, and indoor air pollution) in their revised poverty reduction strategies. These strategies, however, may not cover all ecosystem services comprehensively. They may miss some important issues, typically revealed in an ecosystem assessment (e.g., trade-off or competition between two ecosystem services, the importance of regulating services, or the links between upstream and downstream users of a watershed). In this case, a rapid dependency analysis may not be sufficient and a more comprehensive pilot ecosystem assessment is needed to provide new information. The pilot ecosystem assessment would have to focus its data collection and analysis on some of these overlooked ecosystem service issues.

Comments from review workshop

Participants at the review workshop felt that systematic technical backstopping could improve the quality of the assessment reports. They also had a number of suggestions on how to increase the use of information from the pilot ecosystem assessment and embed the pilot assessments into broader efforts to carry out ecosystem assessments:

Quality of the pilot ecosystem assessment reports

- Better backstopping from PEI team is needed to ensure adherence to the Millennium Ecosystem Assessment methodology. Backstopping from experts involved in the Subglobal Assessments of the Millennium Ecosystem Assessment and UNEP-WCMC would also help.

Use of information from the pilot ecosystem assessment

- PEI should help in identifying the 'real' stakeholders and decision-makers and involve them in the process of the pilot ecosystem assessment from the beginning (e.g., members of parliament rather than the civil service).
- It was unrealistic to expect the pilot ecosystem assessment consultants to do the influencing policy work (e.g., writing policy briefs and communicating results). This is best carried out by the broader PEI team with the help of communication experts.
- PEI should help to ensure broad dissemination and wide publicity of the pilot ecosystem assessment report.
- Awareness campaigns should be based on the findings of the pilot ecosystem assessment, and be set out in the PEI project plans and the terms of references for the assessment (this means defining the boundaries of a pilot ecosystem assessment more broadly and long-term than just the data compilation, field work, analysis, assessment report preparation, and review).

Pilot ecosystem assessment can become a first step in building enduring capacity for regular ecosystem assessments

- The participants also discussed whether an operational, cost–effective pilot ecosystem assessment focused on collecting and analyzing available data on ecosystem services in a policymaking context could be considered the starting point for building up national capacity to undertake regular ecosystem assessments within a country which could become part of the broader effort to establish more sustained follow-up to the Millennium Ecosystem Assessment (subglobal assessment component).

V. RECOMMENDATIONS FOR PEI AND WAY FORWARD

The following recommendations summarise specific actions PEI can take to improve the cost-effectiveness and policy impact of future Ecosystem Assessments (EAs) undertaken as part of PEI country programmes

Strategic/Policy Impact

- Plan the EA to respond to ongoing policy or planning processes.
- Identify the 'players' in the policy arena and their needs. Involve them early in the EA process. Make policy impact a focus area for the EA.
- Produce tailor-made, policy-relevant and targeted summaries of the EA results and use specific expertise to prepare these.
- Where applicable, conduct complementary studies (such as economic valuation of ecosystem services) in the same location as the EA to expand the evidence base for environment mainstreaming.
- Invest in supporting activities to increase the impact of the EA, e.g., awareness campaigns about ecosystem services and their link to human well-being.
- Focus attention more on dissemination of the EA findings and recommendations and target different user groups and decision-makers with specific summaries and products.

Capacity Building & Knowledge Transfer

- Plan the EA with a focus on its intended capacity building outcomes – identifying intended targets/beneficiaries and specific actions required. Ensure selection of practitioners is consistent with goals of local ownership and longer-term capacity building
- To improve the capacity of assessment practitioners/researchers, PEI can draw from guidance material prepared by WCMC, WRI and UNEP.
- Where possible, capacity building of practitioners should link better to other ongoing capacity building initiatives in the country and existing international knowledge networks of EA experts.
- The experience from the EA should be fed back into improving broader EA training and capacity building efforts. This requires establishing regular reviews of EAs (its approach, process, and impacts).
- Wider capacity building objectives will focus on government institutions, civil society organizations, local communities, universities and the private sector.
- Ensure that the lessons learnt from the EA process are incorporated into academic training so this can contribute to wider capacity building efforts in the country.

Training/backstopping

- Promote 'continuous' or step-by-step training for assessment teams to rather than a single 5-day initial training course.
- PEI should work with partners to develop new training modules that address key shortcomings of past pilot EAs (e.g., how to increase policy impact or work with little readily available data).
- Provide technical and operational support throughout all different stages of the EA.
- Include policy makers in training. Introduce local level training (e.g., at district level) on how to use the EA (this requires EA findings tailored specifically for these local decision-makers).

- Include technical support from experts with relevant experience within the Sub-Global Assessment network under the MA Follow Up process.

Cost Effectiveness

- Plan the EA with a clear focus on matching resource inputs/timeframe to the operational needs/opportunity in the particular country mainstreaming programme.
- Guide the assessment team to match the scope and emphasis of the EA with what PEI wants to achieve in relation to the policy process.
- Choose a site for which information and secondary data exist. This together with ease of logistics and political support will lower EA costs.

Assessment Process.

- Make sure that planning for the EA is comprehensive and realistic. It must include all the necessary steps to produce a rigorous EA, build EA capacity, and achieve policy impact.
- Planning for an EA may need more reflection on different kinds of 'products' as outputs depending on the desired influence.
- Make sure there is a monitoring and evaluation component for the EA.
- As part of the EA process, a reference group should be established to provide strategic direction, legitimacy, and relevance.
- Hold an inception workshop for technical aspects and a separate workshop focused at a policy audience.
- Ensure effective peer review and stakeholder engagement.
- PEI could also focus the EA on processes at the sector or sub-national as well as the traditional PRSP as entry points.
- Allocate more resources for data integration and analysis (including sufficient time during the assessment).

Assessment Team

- Make sure assessment teams are small and focused, but still multi-disciplinary and capable of sub-contracting EA tasks.
- Define key responsibilities of EA team, especially the role of the EA team leader conducting the assessment vis-à-vis the project manager (e.g., the project manager needs to ensure policy relevance, a well-coordinated review process, and smoothly run technical and operational support).
- The input of technical assistance needs to be better planned throughout all phases of the EA.

EA Terms of Reference

- Tailor the ToR in terms of needs, outputs and the impact PEI wishes to achieve e.g., focusing on specific sectors; including the potential for a local impact within the ToR; including the need for different kinds of 'products' depending on where the EA needs to influence (different policy levels).
- Define a narrow and very specific purpose that includes a policy audience. Avoid broad and general statements in the ToR.
- Explicitly include tasks for writing and for the review process. Plan and budget for a separate summary for policymakers.
- Develop a bias towards secondary data and discourage complex and comprehensive data collection.

Follow-up

- Encourage countries to develop new ecosystem information as a follow-up to the EA through better use and integration of secondary data or collecting new data.
- Link PEI supported EAs to wider efforts that build national capacity to undertake longer-term EA processes – consistent with the Millennium Assessment Follow Up process.
- Within PEI country programmes, the application of the MA approach may need to be phased – a short rapid assessment of ecosystem services/poverty linkages at the earliest stage, leading to an operational policy focused EA (similar to the pilots) and eventually to a more sustained, institutionally- anchored SGA – with a more enduring capacity building goal.

APPENDIX 1 TERMS OF REFERENCE: RAPID EVALUATION OF PILOT MA ASSESSMENTS UNDERTAKEN THROUGH THE POVERTY ENVIRONMENT INITIATIVE IN 3 AFRICAN COUNTRIES

1 - Background

The ultimate value of the Millennium Ecosystem Assessment (MA) approach will be in its influence on policy and action to reduce poverty and reverse the degradation of critical ecosystem services. There is significant demand by many developing countries for practical tools and methodologies for applying the MA conceptual framework and many of its findings and recommendations.

The 'Policy Implementation' component of the 'Implementing the MA Findings and Recommendations' project aims to make the MA an invaluable part of mainstreaming poverty-environment linkages into national economic and development policies. The two main components in this regard are:

i) to evaluate lessons learned from earlier attempts to apply the MA conceptual framework at the national level through the poverty-environment mainstreaming programmes under the UNDP-UNEP Poverty and Environment Initiative (PEI); and,
ii) based on the lessons learned, to strengthen existing tools and methodologies and improve their application, and apply as appropriate the additional tools and manuals developed under the 'Building and maintaining the Knowledge Base' component of the project through new country assessments.

Whereas commendable attempts have been made in mainstreaming environmental concerns into national development strategies and plans (e.g. PRSPs), there is a need for continuous guidance of the processes that generate annual policy actions and resource allocations with a view to ensuring that the focus on environmental concerns is sustained. Integrated ecosystem assessments provide an opportunity to deepen the understanding of the critical linkages among ecosystems, poverty reduction and human well-being at the country level and thus contribute in demonstrating the critical need to prioritize the environment in development planning, resource allocation and implementation of development policy.

Over the last 2 years, pilot integrated ecosystem assessments/sub-global assessments (SGAs) were conducted under the UNDP-UNEP PEI country programmes in Rwanda, Tanzania and Uganda, and there is existing demand from other countries for support in preparing and implementing additional SGAs.

The main objectives of the pilot SGAs conducted in Rwanda, Tanzania and Uganda were to:

- Improve the country-specific information base on the linkages between ecosystem services and human well-being with a view to informing and influencing national planning processes - *such as PRSPs* - and improving environmental decision-making in the countries;
- Provide policy options for improved environmental management and guiding the key responses related to the use and management of ecosystems vis-à-vis human well-being;
- Build national capacity to undertake Integrated Ecosystem Assessments and provide a framework for identifying mechanisms, tools and benchmarks for undertaking similar assessments conducted at different scales and scope;

- Demonstrate the advantages of the MA approach in providing policy-relevant scientific information on the relationships between ecosystem change and human well-being to decision-makers.

2 – Purpose of the evaluation

Before undertaking new SGAs under the UNDP-UNEP Poverty-Environment Initiative (PEI), it is critical to take stock of how the existing SGAs were undertaken, and how relevant, effective and efficient they have been in line with the PEI objective of environmental mainstreaming into country level development planning and budgeting processes. The rapid evaluation will look at the following aspects:

1. *Capacity building and knowledge transfer:* (i) draft SGA Training Modules developed under the Poverty and Environment Initiative and applied in the pilot SGAs and; (ii) capacity built at the national level.
2. *Terms of reference and assessment arrangements and process:* (i) terms of reference (TORs) for the pilot SGAs and their application and; (ii) management and execution of the assessments, including technical back-up, choice of consultants and management, methodologies, peer review process, stakeholder engagement, including with respect to the existing MA guidelines and criteria.
3. *Results and impacts of the country level SGAs:* (i) quality, value added and policy relevance of the country-specific information generated by the 3 SGAs on ecosystem service changes, the impacts on human well-being and the consequences on poverty levels, and value of this information in the context of supporting country led poverty-environment mainstreaming and; (ii) process and extent to which the results from the SGAs have been mainstreamed into the poverty reduction strategies and/or other country/decentralized level development plans and strategies.

3 – Tasks

1. *Capacity building and knowledge transfer*

1.1 - Assess the quality - *in terms of capacity building results* - of the trainings that have been conducted under PEI between 2005 and 2006: (i) Training of trainers at Rhodes University, South Africa (representatives of all countries participated) and (ii) country level trainings in Butare (Rwanda), Uganda, Tanzania, Nouakchott (Mauritania) and Bamako (Mali). Provide lessons learnt and recommendations/options on optimal arrangements related to the country-level trainings with the objective of ensuring more successful/sustainable capacity building (how should the training best be conducted to achieve the capacity building objectives?);

1.2 - Assess the quality of the training manual – *in view of PEI's mainstreaming objectives* - and provide recommendations to improve the training manual.

2. *Terms of reference and assessment arrangements and process*

2.1 - Assess the quality of the ToRs (for the assessment team and the international expert) of the 3 pilot IEAs – *in the view of PEI's mainstreaming objectives and with respect to the existing MA guidelines and criteria* - and provide recommendations to improve the ToRs for future SGAs;

2.2 - Provide an analysis on how the ToRs of the 3 pilot IEAs and the related methodologies elaborated by the national assessment teams link to national priorities, existing information base and local socio-economic factors;

2.3 – Provide an analysis of the assessment process from planning stage to implementation (arrangements for backstopping, commissioning and managing the studies) by analyzing the implementation set-up (national assessment team and international expert as well as profiles of the team members), the methodologies elaborated by the national assessment teams and the overall arrangements including peer review. Provide clear recommendations to strengthen/clarify the profiles and roles of each of the members of the national assessment teams, and of the international experts that may be engaged.

3. Results and impacts of the country level SGAs

3.1 - Assess the quality (in terms of advocacy and scientific data/information) of the 3 reports and summaries to decision makers. Special attention should be given to the scientific credibility, policy relevance and impact of the messages generated to convince decision-makers and policy-makers on the importance of sustainable ecosystem management to achieve their national development goals and priorities (including the MDGs);

3.2 - Provide an analysis of the extent to which the results and recommendations have been used into poverty reduction strategies (and/or other country level/decentralized development plans and strategies) and economic planning frameworks and to what extent they have been used for advocacy and awareness raising. Provide recommendations / options for maximizing impact of results in line with the PEI mainstreaming objectives and in the country-specific policy contexts.

3.3 – Provide an analysis of the cost-effectiveness of the 3 pilot IEAs in view of their contribution to the overall objectives of the respective PEI country programmes.

This evaluation will be undertaken by one evaluator responsible for preparing an in-depth evaluation of the 3 IEAs and for evaluating the policy-related outputs and follow-up recommendations.

The findings of the evaluation will be based on the following:

1. A desk review of related documents including, but not limited to:
   a) Training manuals and reports from training workshops
   b) Terms of reference and related methodological approaches,
   c) Assessment reports and related briefing notes for policy makers,

2. Surveys and interviews/consultations with relevant stakeholders (trainers, PEI focal points in the country and in Nairobi, assessment team…).

The evaluator will travel and meet at the UNEP Headquarters in Nairobi, Kenya at the beginning of the evaluation. Whilst in Nairobi he will consult with staff from UNDP-UNEP PEI, UNEP DEWA and UNEP EOU. The evaluator will travel to Rwanda, Tanzania and Uganda to conduct in-depth discussions with participating national assessment teams and collaborating institutions.

Location	Purpose	Duration & Timing
Nairobi Kenya	Meet with staff from UNDP-UNEP PEI, UNEP DEWA and UNEP EOU to discuss evaluation approach, conduct interviews with UNDP-UNEP PEI focal points for Rwanda, Tanzania and Uganda and gather data.	5 days
Rwanda	To evaluate the *Pilot Integrated Assessment of Bugesera* Meet and conduct interviews with PEI national focal	3 days

	points, national Project Management Unit and IEA assessment team (main contacts: Rose Mukankomeje, DG REMA and National PEI coordinator, dgrema@gmail.com, Assessment Coordinator, Mr. Charles Twesigye-Bakwatsa, craconsult@yahoo.com and Mr. Michael Kabutura, kabutura.michael@gmail.com)	
Tanzania	To evaluate the *Pilot Integrated Assessment of Mt. Livingstone area* Meet and conduct interviews with PEI national focal points, national Project Management Unit and IEA assessment team (main contact: Blandina Cheche, National PEI coordinator ndina40@yahoo.com, Arnold Mapinduzi, NEMC, amapinduzi@hotmail.com)	3 days
Uganda	To evaluate the *Pilot Integrated Assessment of Lake Kyoga catchment area* Meet and conduct interviews with PEI national focal points, national Project Management Unit and IEA assessment team (main contacts: Ronald Kaggwa National PEI coordinator, rkaggwa@nemaug.org, Frank Kansiime, lead consultant, Makerere University, fkansiime@muienr.mak.ac.ug and Moses Masiga, nomman22@hotmail.com)	3 days
Kenya	Finalization of the draft report with supervision from UNDP-UNEP PEI, UNEP DEWA and UNEP EOU as well as members of the SGA working group.	5 days
Home	Finalization of final report integrating comments and observations from UNDP-UNEP PEI, UNEP DEWA and UNEP EOU as well as members of the SGA working group.	3 days
Kenya	Preparation and presentation of results at workshop (to be scheduled later in 2008)	3 days

4 - Expected outputs

The evaluation report should be composed of (1) a concise summary, not exceeding five pages, including findings and recommendations and (2) a detailed evaluation report – *providing an analysis of the following aspects: (i) capacity building and knowledge transfer, (ii) ToRs, assessment arrangements and process and; (iii) results and impacts of the SGAs (including successes and positive achievements)* - not exceeding 40 pages, providing specific guidance and recommendations for:

1. Revising and improving the content and application of the training module;
2. The optimal arrangements for backstopping, commissioning and managing the assessments;
3. Developing TORs for SGAs taking into account national priorities, stakeholder engagement, existing information bases and local socio-economic factors;
4. The development of guidelines on mainstreaming SGA results into poverty reduction strategies (and/or other country level development plans and strategies) and economic planning frameworks, and options for maximizing impact of results in the country-specific policy contexts.

In preparing the report, the consultant should establish logical linkages between findings and recommendations and make recommendations realistic, understandable and operational.

5 - Duration of Assessment

25 days including field missions to Nairobi and in each of the 3 countries.

6 - Profile and qualifications

The evaluator should be an international expert and have the following minimum qualifications: (i) experience on ecosystems assessments in particular with targeted assessment projects that generate policies/strategies, knowledge and information and their management, (ii) familiarity with the MA process other assessment processes; (iii) experience with policy / development planning and decision-making processes and; (iv) experience with project evaluation.

7 - Schedule of payment

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 SSA 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 TORs, 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.

Please send your applications by June 15 2008 to:

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APPENDIX 2 LIST OF PERSONS INTERVIEWED

Tanzania

Prof. Paul Maro	UDSM
Dr. Razack Lokina	UDSM
Mr. Vedast Makota	SUA/NEMC
Mr. Abel Sikaona	NEMC
Mr. Arnold Mapinduzi	NEMC
Mr. Gideon Nkondola	Mbinga District (by phone)
Ms. Gemma Aliti	UNDP
Mr. Bonaventura Baya	NEMC
Mr. Ruzika Muheto	NEMC
Mr. Servus Sagday	MMS
Ms. Blandina Cheche	VPO/PEI
Dr. Fadhila Khatibu	NEMC/LKEMP

Rwanda

Mr. Charles Twesigye	PEI
Mr. Michael Kabutura	PEI
Mr. Alex Mulisa	PEI
Mr. Cyrille Turatsinze	PEI
Mr. Francois Nkurunziza	Bugesera District (Mayange Secteur)
Mr. Theobald Mashinga	REMA
Mr Placide Magambo	PEI media/consultant
Mr. Innocent Kabenga	National University of Rwanda /NTEAP
Ms. Theresa Musabe	National University of Rwanda /NTEAP
Mr. Maximillien Usengumuremyi	Ministry of Finance PEI focal point
Dr. Rose Mukankomeje	REMA

Uganda

Dr Frank Kansiime	MUIENR
Dr. May Sengendo	Makerere University
Dr. Ann Akol	Makerere University
Dr. Esaza Kateregga	Makerere University
Mr. Moses Masiga	ENR Africa Associates Ltd.
Mr. Ronald Kaggwa	NEMA
Dr. Aryamanya Mugísha	NEMA
Mr. Eugene Muramira	NEMA
Mr. Jim Kunobere	Nakasongola District
Mr. Alex Asiimwe	Makerere University
Mr. Stephen Khaukha	NFA
Ms. Agnes Yawe	Environmental Alert
Mr. Joel Wako	Uganda Environmental Education Foundation
Mr. Nicholas Senyonjo	Uganda Environmental Education Foundation

UNEP and PEI staff (Nairobi)

Mr. Razi Latif	PEI Facility
Dr. John Horberry	PEI Facility
Mr. David Smith	PEI Africa
Ms. Louise Sorensen	PEI Africa
Ms. Angela Lusigi	PEI Africa
Dr. Anantha Duraiappah	UNEP-DELC
Ms. Makiko Yashiro	UNEP-DELC
Dr. Peter Gilruth	UNEP-DEWA
Ms. Esther Reilink	formerly PEI Africa (by phone)
Ms. Miia Toikka	formerly PEI Africa (by phone)

Millennium Ecosystem Assessment experts

Dr. Erin Bohensky	formerly SAfMA (by phone)
Mr. Marcus Lee	formerly UNEP-DEWA

APPENDIX 3 LIST OF WORKSHOP PARTICIPANTS

Organization	E-mail
Poverty Environment Facility	
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