Evaluation of the FAO project "Roles of Agriculture" - Phase II

Eirik Romstad (team leader, Norwegian University of Life Sciences, Norway)
Yasuo Ohe (donor country representative, Chiba University, Japan)
Agnes Rola (University of the Philippines, the Philippines)

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0. Executive summary

1. Through the RoA project the FAO has helped increase our understanding of agri-environmental linkages towards environmental services and poverty alleviation.

2. Much of the work done is promising from an academic perspective, and should be formally tested by submission to peer review journals.

3. The choice to make RoA phase II more focused and research oriented is well motivated,

4. Short term measures to increase the benefits of the project include publication in internationally renowned peer-review journals, and increasing developing country decision maker/advisor awareness of the increased modeling capabilities in their own country.

5. Long term measures include securing external funding to build on the RoA insights and lessons learnt. The FAO is in a unique situation of facilitating north-south and south-south networks on environmental services, the policies and institutions needed for sound management of the environment, and for poverty alleviation.

6. In a transition phase before long term funds are available, the FAO should secure internal funds to allow keeping good existing staff and attract new staff.

7. The RoA project would not have materialized as it did without the work done and generous financial support provided by the Japanese government. The strategic impacts of this involvement may be large provided that the FAO is willing to follow up the insights gained and lessons learnt form RoA.

8. The funds for RoA II have been used in accordance with donor objectives and the plans made following phase I.

9. The FAO needs to pay more attention to project management and administrative routines. Internally, this involves having routines for securing continuity of research projects. Externally, this includes putting in place incentives for southern partners to streamline their administrative routines as well.

10. The RoA project introduces a new paradigm for FAO, a focus on the broader issues of economics and the environment, beyond agriculture; and potentially, technical assistance on policy development, and not just agricultural technology advice. FAO country representatives could take this opportunity to start connecting with environment and economics offices in the countries; rather than just working with the agriculture ministries.

11. The FAO is expected to play a positive role on disseminating the innovative notion that the RoA project presents, not only for capacity building of researchers and policy makers, but also for education of younger generations about the new roles of agriculture.

12. The research topics in the RoA project need to be pursued further by a stronger focus on the income generating process from environmental services, and also on improvement of modelling quantitative policy analyses in cooperation with international research institutions.

1. Introduction

1.1 Purpose of the evaluation

The terms of reference for the evaluation (see Appendix 1) states the following main objectives:

> The evaluation is intended, as the project draws to a close, (i) to provide recommendations to the FAO and the donor on the further steps necessary to consolidate progress and ensure achievement of objectives, and (ii) to provide accountability to the FAO and the donor on the outcomes of the project.

1.2. Scope of the evaluation

The terms of reference for the evaluation work (see Appendix 1) also states the task of the work of the evaluation team, which are to assess:

(a) Relevance of the project to development priorities and needs in developing countries.

(b) Comprehensiveness and consistency of the project design, including (i) the clarity of objectives; (ii) consistency between activities, outputs and objectives; and (iii) the specification of project process and methods in light of the following evolution of the project:

- original RoA Phase II project document;
- subsequent modifications of the scope of the project; and
- work plans developed to guide ESI and PAFS research components.[1]

(c) Efficiency and adequacy of project implementation including: (i) availability of funds as compared with budget; (ii) the quality and timeliness of activities; (iii) managerial and work efficiency; (iv) managing implementation difficulties; (v) adequacy of monitoring and reporting; and (vi) the extent of national support and commitment and the quality and quantity of administrative and technical support by the FAO;

(d) The processes of the project including:

- integration into FAO's work;
- consultation in designing approaches, methods and coverage of work at the global and country levels; and
- development and communication of the project's findings;

(e) Project results, including a full and systematic assessment of outputs produced to date (quantity and quality as compared with work plans and progress towards achieving the immediate objectives). The work to be evaluated includes:

- analytical framework papers for country-level policy analysis studies of ESI and PAFS;
- reports from individual country-level policy analysis studies of ESI and PAFS;
- cross-country synthesis reports on ESI and PAFS;
- policy implication reports on ESI and PAFS;
- briefing materials; and
- workshop.

[1] ESI: *environmental service instruments* (module), PAFS: *Poverty alleviation and food security* (module).

(f) The effects and impact of the project, including short and long term prospects for the use of project results by policy makers, particularly in the countries covered by policy analysis studies. The evaluation should examine in particular the prospects for:

- the continuation of follow-up studies within the FAO;
- partner institutions in charge of the country-level policy analysis studies to continue similar studies and further elaborate on the findings of the project's first phase;
- a contribution reinforcing the FAO's normative capacity to address issues related to environmental services, poverty alleviation and food security; and
- other institutions making use of the work and following up on it.

(g)The cost-effectiveness of the project: Based on its knowledge of the FAO and other major applied research studies, the evaluation should draw specific conclusions on the cost-efficiency and effectiveness of the work.

Based on the above analysis the mission will draw specific conclusions and make proposals for any necessary further action by the FAO and/or donor to ensure sustainable development, including any need for additional assistance and activities of the project prior to its completion. The mission will draw attention to any lessons of general interest.

The RoA phase II Evaluation team notes that already in these terms of reference there is an implicit acceptance of the change in the implementation of the project from the original phase II proposal.

1.4 The work of the Evaluation panel

The RoA phase II Evaluation panel has laid out a wide scope for our work. This entails the following tasks:

- Read all phase II submitted written materials (scientific publications, policy briefs, newsletters, policy documents, see Appendix A2 for an overview).
- Discussions with current project leader and lead researchers for the modules (Takumi Sakuyama for the project as a whole and the ESI module, and Fabricio Bresciani and André Croppenstedt).
- Discussions with other FAO staff who have been partially involved with the ESI module, Monika Zarek and Leslie Lipper.
- Participated in the RoA phase II final workshop (Rome, December 6-7, 2006).
- Conducted interviews and discussed the RoA project with select persons after the RoA phase II final workshop:
  - Case study research participants.[2] We chose to conduct these interviews and discussions in a group format to make the meeting more conducive to exchange of information and to enable the various researchers to react to matters brought up by other researchers.
  - A representative for the Japanese donors, Ms. Ryuko Inoue, currently the Director of foreign affairs of the Japanese Ministry of Agriculture, Forestry and Fisheries.
  - Past RoA project leaders, Kunio Tsubota and Randy Stringer.

[2] The full list of those met by the evaluation team is in Appendix A3.

  - Policy makers and policy advisers in developing countries involved in the project.[2] Similar to the case study research participants a group format was chosen for this meeting.
  - Two of the senior policy advisors to the RoA project, Gérard Viatte and Alberto Valdes.
- Visited two of the case study sites by going to Morocco (November 29-December 5, 2006), and Indonesia (December 10-14, 2006). In both countries we met with representatives for the involved research institutions, and possible users (policy advisers and decision makers) of the research findings, and analysis tools under development.
- Examination of the RoA (phase II) web page.

The RoA phase II Evaluation team views our participation in the final workshop as helpful for our evaluation. In addition to getting a fast overview of the project, in enabled meeting many of those involved in the project in various roles related to the project. This also made it possible to use of a group format for many of our meetings rather than meeting with single researchers, project staff, and project advisers. As a result, the evaluation team decided against conducting a survey of project participants (as we deemed less would be gained from this that the associated costs for those contacted).

The FAO, in particular Mr. Takumi Sakuyama, has been very helpful in facilitating the general work of the review panel. Local FAO representatives and staff members were also most helpful during our country visits to Morocco and Indonesia. Their efforts made our work possible under the time constraints, and has contributed to making this assignment far more enjoyable than what otherwise have been the case.

2 About the RoA phase II operationalization

There is a long process leading to the operationalization of the RoA phase II project. Phase I, and its evaluation have already been dealt with from a formal project perspective. Initially RoA phase II was to include 3 research themes. To better understand this process, we have chosen to further discuss the phase I evaluation, the ensuing development of phase II objectives, and the steps from objectives to an operational project.

2.1 Phase I evaluation

Phase I of the RoA project was evaluated in May 2004. We find the following points in the RoA phase I Evaluation report particularly relevant and of interest regarding how to organize phase II (our comments given below the selected points):

(vii) The Evaluation team, accordingly, recommends a second phase oriented towards policy issues, with research addressing those aspects which are necessary to strengthen the opportunities of systemic analysis offered by ROA. Instead of financing pieces of research relatively isolated from each other, ROA should, in the view of the team, be an opportunity for FAO to revive and take further in the context of globalisation the heritage of institutional economics including social, political and cultural analyses too long neglected by development institutions. The greatest danger is that Phase II could become more rather than less fragmented in its approach than Phase I, diminishing the greatest potential contribution from ROA of examining the linkages and inter-actions between policies.

Given available project resources in phase II, its scope has been narrowed accordingly. The phase II Evaluation panel finds that the two topics chosen for phase II (environmental services and poverty alleviation and food security) are sound choices for the reasons already mentioned in Section 1.1.1. The comments by the phase I Evaluation panel, in particular regarding the context of globalization, strengthen this reorientation and increased focus.

(a) It is highly relevant given the issues surrounding the so called multi functionality concept in the ongoing WTO negotiations. In a developing country context, can environmental services provide an extra avenue for economic development? And what are the conditions necessary for this to occur?

(b) Economic sustainability of agriculture is imperative for agriculture being able to play a role in the development process. This particularly relates to the rural poor, who could be direct beneficiaries of increased income potentials in agriculture and related sectors.

(ix) It is recommended that both from the point of view of integrating the research on the various roles into a systemic framework and from the perspective of addressing the effects of policy changes, the research focuses in Phase II on, at least, two representative agro-ecological zones in each country, one in a relatively low productivity area, with extensive poverty and weak infrastructures, and the other in an area where there is already a relatively high level of intensification or a good prospect for intensification and employment generation from agriculture and agriculture related industry. In many cases the higher potential area will be irrigated and thus, the research is, for instance, likely to juxtapose and compare the environmental issues of irrigation and intensified input use against those accompanying over-exploitation of a marginal fragile resource within the same policy framework, present or future. Such choices of areas should also, to a greater extent than in Phase I allow cross-

country comparisons. When the building blocks for in-country and cross-country comparisons are not available from Phase I adjustments need to be made.

The Phase II Evaluation team views the above point on the selection of case study countries and areas as a principal guideline. However, in the practical implementation of Phase II we see that other criteria had to play a role in the selection process. These relate to the need of finding case study partners who had the capabilities and resources of doing the desired research, and that case study policy makers and advisers see the need for the research to be undertaken. The available resources for Phase II limited the possibilities of large scale funding of the case study projects. This necessitated also considering the options of coupling RoA Phase II research initiatives with on going research while maintaining a focus on providing additional value in terms of insights to be gained.

(x) It is recommended that Phase II should not artificially exclude trade and foreign exchange earning. Further study of the buffer role may not be justified. Instead of dissolving module 7 on "culture" into module 6 on "social viability", it is recommended to develop a separate module on the agriculture and rural life related perceptions by different socio-economic categories, so as to better understand their social, economic and political behaviour for consideration in those contexts where national researchers consider it appropriate. This would help to better understand in various societies/countries how and why decisions are taken which reinforce positive or negative roles of agriculture as a whole or of types of agriculture.

(xi) It is recommended to give more importance to off-farm employment and migration (including seasonal migration), and to disaggregate more systematically the respective roles of women and men by type of work, as well as by age-groups and educational background.

Two of the senior advisers to the RoA Phase II project, Gérard Viatte and Alberto Valdés, expressed similar views, in particular related to the need of looking at possible foreign trade impacts and agriculture as one of many avenues for rural development.

The Phase II Evaluation team shares the above points, in particular related to trade impacts and the need to view agriculture in a broader context of rural development. While desirable to do more detailed studies on the roles of women, the influence of education and age impacts, the Phase II Evaluation team sees the reduced focus of this in Phase II as understandable given the available resources.

(xiv) The Evaluation team lists at the end of this report, under the heading "concrete steps to be taken", a number of suggestions as well as a sequence of actions to be taken ranging from the necessary synthesis study and stock taking by the central team to consultations and discussions with the country teams and relevant policy makers, conduct of national research, national policy seminars, international debates, widespread distribution of the main conclusions and dissemination of the most innovative work.

The Phase II Evaluation team shares this perspective. In our meetings with policy makers and advisers from case study countries, researchers from case study countries, and officials at the FAO, all expressed the need for focusing on capacity building in "recipient" countries.

(xv) The Evaluation team recommends that a project manager be available full time (or almost full time) and was pleased to gather from ESA that it is the intention to make a P4 officer under Regular Programme funding responsible for day-to-day management. While the majority shareholder of ROA will remain ESA, other divisions (ESC, SDA, TCA) should be involved to benefit from their experience and publicise ROA conclusions.

The Phase II Evaluation team goes even further regarding the need for follow up on ROA Phase II. Given the novel features of the RoA II project, it is imperative with continuity in the management of the project. At the same time we recognize that personnel are likely to move, making a case for stronger involvement by ESA leadership than what usually is the case in FAO/ESA projects.

(xvi) Given the scope of Phase II, stemming from the preceding recommendations, extending the project over four years with no increase in budget and Regular Programme integration are discussed, as well as certain economies in research from a changed basis for funding, and reductions in modules and countries. The potential for South-South and South-North co-operation between research institutions at no cost to the project should be explored as well as the mobilisation of complementary resources.

Again, given the novel features of the RoA Phase II project, the RoA phase II Evaluation team agrees on the need for a longer time horizon than three years, and the need for looking at co-opration with related projects. Budget matters further accentuate this need.

2.2. Project phase II objectives and evaluation team comments

The RoA phase II main objective is to address market failures, policy failures and institutional failures that impede the numerous roles of agriculture. This main objective led to the formulation of the following specific objectives:

- to examine how market, policy and institutional failures impede agriculture's ability to provide public goods and positive externalities;
- to propose alternative policy and program solutions to the specific issues identified in the case studies; and
- to promote discussion, dialogue and debate at the country level and in international forums about the best ways to provide more appropriate policies to encourage agriculture's contributions, including the levels of public goods and externalities generated by agriculture.

The Phase II Evaluation panel finds these objectives highly relevant and challenging. The potential scientific and development insights from this exercise are high, but also risky in the sense that for these objectives to be met, the project needs to be highly focused.

Building on Phase I experiences, it was chosen to integrate the six Phase I objectives into the following three research themes:

1. managing agriculture's environmental services for the poor;
2. improving agriculture's role in poverty reduction and food security; and
3. enhancing the social viability role of agriculture in the development process.

The rationale for this increased focus was partly to allow for more technical support from FAO in Rome, to enhance the project's ability to examine policy implications and linkages, to make better use of the ESA research resources, and to allow more effective targeting of the project's central messages. Finally, the project framework aimed to draw the cumulative lessons and results to establish appropriate policies and program mechanisms for when and how to intervene.

In the operationalization of the project, research theme three (the social viability role of agriculture in the development process) was *deliberatively* not dealt with as a separate research theme.

The Phase II Evaluation panel condones this choice, as we regard that themes one and two to a large extent are determining factors for the social viability of agriculture in the development process.

The choices made in the reformulation and operationalization of phase II must, however, also be seen in light of the Phase I findings and evaluation. We are particularly concerned with the implementation of the research issues as we turn to the Phase II evaluation.

2.3 Phase II operationalization

2.3.1 The revisions of the project proposal

As already mentioned, this was reduced to two themes:

1. Sharpen the research focus on environmental service provision.
2. Enhance the contribution of agriculture to poverty reduction and food security.

The project proposal contains the following detail on these themes:

Theme 1: Sharpen the research focus on environmental service provision (ESI module).

Phase II proposes to expand the phase I environmental module into a research theme with sub-modules each examining a specific environmental attribute. Each sub-module aims to identify and measure specific public goods or externalities as well as examine how regulations, customs, policies and institutions influence and shape the provision of the five types of externalities. The overall aim is to develop compensation and payment mechanisms and/or appropriate strategies to address policy failures, market failures, and institutional failures in ways that encourage, and sustain these important services, externalities, and public goods while simultaneously contributing to poverty alleviation, hunger reduction and agricultural growth.

The initial five proposed areas are: (1) water resources and watershed management; (2) seed genetic stock conservation and property rights remuneration; (3) biodiversity management and conservation; (4) carbon sequestration; and (5) rural landscape and amenities especially relevant for the tourism based countries.

Theme 2: Enhance the contribution of agriculture to poverty reduction and food security (PAFS module).

ROA phase I research results suggest several institutional and policy failures that limit agriculture's potential growth and its ability to enhance nation-wide poverty reduction and food security. For phase II, research efforts 2 seek to analyse which policy reforms are needed to improve the poverty reduction and food security roles of agriculture. The goal is to form a set of recommendations for policy makers to be used as basis for policy advisory work. Three specific areas where market and policy failures and "underdeveloped" institutions are directly affecting the poverty reduction role of agriculture as well as its contribution to food security:

i. Land tenure policies (China, Ethiopia, South Africa, Dominican Republic). More generally, ROA case studies show that present tenure policies are at the root of stagnation and poorly working land markets, impeding full participation in the process and benefits from growth. In turn, this has implications on the functioning of rural labor markets (which are not neutral to farm size distribution), on the adoption of income enhancing technologies, investment in land improvements, and on the farmers' ability to diversify their productions by entering into cash crop markets.

ii. Institutions and household-specific constraints that affect transaction costs, market participation, and effective prices received by farmers (Ghana, Mexico, Mali, Morocco). With the advent of agricultural market liberalization in many developing countries, the ability of producers to participate becomes increasingly dependent on the effectiveness of local institutions effecting incentives to trade, government investment in infrastructure and information, and farmers' investment.

iii. Agricultural input systems (Ghana, Ethiopia). Malfunctioning input systems limit productivity growth in agriculture and reduce food security. Moreover, access to inputs represents another important factor in strengthening those multiplier effects that enhance agriculture's poverty reduction role. There is a need to devise sound policies and build appropriate institutions allowing input systems, including seeds and fertilizers, to be accessible by small farmers.

2.3.2 The evaluation team's comments to the revised research themes

The operationalization of Theme 1 did not change much from the RoA II phase II proposal, mainly due to the conceptual work done on environmental services in phase I of the project.

Theme 2 was substantially revised when RoA phase II was implemented. For one, land tenure systems were not given the weight suggested in the proposal. One reason for this is that there already is a substantial amount of work done on this, making the expected value added from a strong RoA phase II effort in this area less. The second reason is the increased emphasis on developing policy analysis tools, that eventually led to extending the multi-market modeling tools, and general focus on welfare analysis.

These changes also implied that the partner countries were to change. An increased focus on Theme 1 (Sharpen the research focus on environmental service provision) led to a reallocation of project resources to Theme 1, and necessitated further changes in Theme 2 partner countries.

At the principal level we condone the changes made in making RoA Phase II operational.

2.4 Project resources

The RoA Phase II project's external budget was US $ 3,382,884. In addition to the external funding, ESAC was to provide support of one P4 economist in a 75 % position. For the duration of Phase II the monetary value of this contribution is estimated to be around US $ 335,000. The total value of budgeted resources for RoA Phase II thus equal about US $ 3.7 millions.

In addition to this direct support from FAO, the project benefited from the general involvement of ESAC in Rome, where there is substantial experience in conducting this kind of work. Here, we note that the benefits to FAO in general and ESAC in particular of hosting RoA Phase II are likely to far exceed the expected FAO in house contribution to the project. In retrospect, it also appears that ESAC contributions to RoA Phase II were larger than those committed in the Terms of Reference.

Budgets for travel, external consultants, equipment, and miscellaneous expenses (overheads, general operations, and hospitality) are usually good indicators of the efficiency of the planned use of resources. Table 2.1 shows the total budgeted resources for these activities, and percentages of net and total budget.

Table 2.1: Budgeted resources for selected budget items.

Budget item	***Budgeted estimate(US $)***	***Percent of net budget***	***Percent of total budget***
Travel	540,000	16.0	14.5
External consultants	525,000	15.5	14.1
Equipment	70,000	2.1	1.9
Miscellaneous	28,100	0.8	0.8

Remark: Net budget is the external funding from the project donor (US $ 3,382,884), and total budget (US $ 3,717,884) includes FAO staff contribution (US $ 335,000).

The shares of these selected budget items are small. Here, the evaluation team remarks that a travel budget of less than 20 percent for a project with this many international partners is low. The budget item of external consultants also warrants some comments. One of the comparative advantages of the FAO is their capacity of attracting highly qualified external help at low costs. In RoA Phase II the list of external consultants, both at the central level and for many of the country case studies, is impressive. The overall impression from the budget is an emphasis on efficient use of funds.

In terms of incorporating all relevant lessons learnt from the project in the final project proceedings, continuity in the leadership of research projects like this is important. The overview presentations at the RoA Phase II workshop in Rome (December 6-7, 2006) suggest that there has not been sufficient continuity in the project leadership, particularly on the environmental services theme. Here, we note that the project leader and main responsible person for environmental services left for another position less than a year before the completion of the RoA project. Given that academic hiring processes usually are quite lengthy, the leaving of the project leader was known some time in advance. This should have enabled the ESAC management to strengthen the project leadership by diverting more of its fixed staff for the last year of the project.

2.5 RoA phase II from a donor perspective

Without the Japanese government's generous financial support for both phases of the RoA project, RoA would most likely not have materialized. The evaluation team's meeting with Ms. Ryuko Inoue revealed some initial donor disappointment with RoA in terms of fragmented results, in particular from the EIS module. On this, the evaluation panel makes the following remarks:

The Japanese work to start RoA and the subsequent funding came at a strategically important time for two reasons: (i) it bridges the work done on the supply of public goods from agriculture, the so called multifunctionality issue, in the OECD countries, and (ii) it provides a starting frame for an increased public goods perspective for future FAO work on public goods in developing countries. It must not be forgotten that the RoA project as been able to demonstrate a significant potential for environmental service provision mechanisms under quite diverse conditions. Coupled with the potential strategic implications of RoA, future work in this area entails some interesting possibilities, and appears highly important.

3. Scientific quality and relevance

Phase II of the RoA project is not completed at the time of this report. Many of the documents reviewed are therefore still in a draft mode or still under preparation. In addition to some of the case study documents, this therefore naturally also is the case for the summary documents of the two modules of the project.

3.1 Environmental services module

The environmental services module is by far the largest of the two modules, budget wise and in terms of the number of case studies conducted. It is also the most challenging from a research perspective for several reasons:

1. The marginal costs of public funds in developing countries are high, often more than two. This implies large efficiency losses if environmental services are to be paid for through public budgets. Hence, the idea of paying for environmental services (PES) by other means than public funds has emerged.
2. It is conceptually demanding, in particular given the wide spread (but erroneous) perception that environmental services are luxury goods (see Kristrom and Riera (1996) for a discussion on the luxury goods issue). Still, policy makers and others are likely to be skeptical regarding the willingness-to-pay for environmental services, in particular in developing countries.
3. Even in industrialized countries non market and biological data are generally scarce or not well suited for economic analyses. The data issues are generally even more profound in developing countries.

As such, the environmental services module as planned under RoA phase II entails several novel elements. This is also reflected in the RoA phase II project proposal (Stringer, 2004), and in the general literature on environmental issues in developing countries (see Zilberman and Bulte, 2007)[3].

The RoA project environmental services module has been able to link own research initiatives with ongoing research projects with several renowned international scholars already involved. This has given rise to several high quality papers. As such, the overall scientific quality assessment of the RoA phase II environmental services module appears strong. However, this way of "identifying" country level cases studies has two possible disadvantages: (i) the topics investigated are quite diverse, making it more difficult to identify common features of the case studies, and (ii)see case studies' capacity building role may suffer somewhat unless good cooperation with researchers from the case study countries have been established. Issue (i) may have been serious if the environmental services module under RoA phase II was part of a mature research area. It is not in the sense that few applications exist. Hence, having a wide focus in the country level studies may be beneficial in the sense of triggering additional studies in the future.

Concern (ii) on capacity building is more serious in the short run. Without a rapid increase in developing countries' own research capabilities on environmental services, the influence of research findings in the area on agri-environmental policies in developing countries is likely to remain limited. This is serious for several reasons. It is well known that many ecosystems

[3] This special issue of the Journal of *Environmental and Development Economic*s is not out yet, but the novelty of the approaches is verified through personal communications with Erwin Bulte.

and species in developing countries are threatened or under heavy pressure. Large delays in environmental services becoming part of the policy agenda in developing countries may lead to further reductions in eco system qualities, the loss of key habitats, and the extinction of species.

On the other hand, one can not hold the RoA project environmental services module responsible for this. After all, it is one of the first attempts of undertaking cross country case studies utilizing a well developed conceptual framework. It is highly possible that the time losses due to delays in the capacity building and consequent interactions with policy makers are less than the damages of poor quality or topically irrelevant studies.

Already at this stage it is therefore obvious that more quality research on environmental services and PES in developing countries is needed. As the extent of this research grows, so will capacity building in developing countries.

3.2 Poverty alleviation and food security module

The research on poverty alleviation includes two modelling approaches: (i) a multi-market framework to study impacts at the macro level, and (ii) micro simulation models to derive insights about the impacts at the local level. The overall approach is documented in Bresciani and Croppenstedt (2006), and Bresciani and Valdés (2007).

The primary motivation for using a multi-market framework is two-fold. First, activities related to environmental services are unlikely to have impacts that are so large that equilibrium prices and quantities in the remainder of the economy would be affected. Hence, the extra data needed to construct the social accounting matrix needed for a CGE framework are not needed. In brief, the multi-market framework is by far less data demanding than those of a CGE approach.

Second, being quickly able to trace overall impacts on the economy of wide spread adoption of environmental services activities is imperative for recipient countries' willingness for continued investment in related projects. As such, multi-market models may be perceived as a rapid appraisal approach at the macro level.

The disadvantage of the multi-market approach over a CGE framework is that prices are exogenously set. From a research perspective it would have been interesting to be able to assess the errors made by the multi-market approach vis-a-vis CGE models under a variety of conditions. This research perspective has not been fully addressed in the economy wide part of the poverty alleviation module.

The PAFS module has greatly benefited from continuity in its leadership. This has provided an FAO conceptual base for the multi market modeling framework, and even enabled the adoption of micro simulations and CGE models in some cases. The strong FAO anchoring has also given continuity in the relationship with the national case study teams, and reasonable early starts of the national projects with one exception, Morocco.

The PAFS module in Morocco is the only national case study that has not adopted the FAO multi market modelling framework, but chosen to follow a CGE model framework. While this may be wise from a single Moroccan perspective, some potential overall research gains may have been lost by this.

3.3 Interactions

We have already pointed to the erroneous perception that environmental services are luxury goods (Kriström and Riera, 1996). Still, poverty limits the policy space in many developing countries as paying for environmental services becomes prohibitively costly due to the high marginal costs of pubic funds.

Attempting to link environmental services and poverty alleviation, as done in RoA phase II, therefore appears a necessary approach. Some of the case study results obtained, in particular in Morocco, suggests that linking environmental services and poverty alleviation lead to local action and institutional development that widen the policy space (Allali, 2006). Although the evidence of this is not equally strong in the other case study countries (Morocco is the only country in RoA phase II) where both modules are present, the results from the Mexican, Ugandan, and Kenyan case studies are promising.

3.4 Outlet activities

The major outreach activities of the RoA project to date are the policy briefs, the newsletters and the WEB site. Their common feature is that they are all well laid out, and provide information that appears useful to various user groups in a concise and dense format.

During the progress of the project, we would particularly point to the newsletters. They are a nice and reasonably low cost way of providing information about ongoing work and insights generated to those external as well as internal to the project. Our only criticism, particularly to project participants is that with the first newsletter being produced in September 2005, i.e, well into the project, one may have missed some opportunities in terms of internal bonding.

WEB pages also serve this dual role. The RoA web page (*http://www.fao.org/es/ESA/Roa/*) is well designed and contains most of the information and functionality one expects from modern web pages. It has an internal search facility that works well, but it is slow and it identifies more than just the work done on or in conjunction with the project. This lack of separation is most likely due to the internal architecture of FAO WEB pages. Hence, the proper addressee of our critical remarks on this aspect is not the RoA project, but the FAO's general web architecture.

Given today's modern search engines it is important that WEB pages use metatags and other tools to be searchable on key issues. There are no such functionability in the current design. While this also is a responsibility of FAO in general, this can easily be corrected by inserting metatags and searchable key words. For wider audiences searching the WEB and being unaware of the RoA project, this functionality is essential. A general “Google search” on some key words in the RoA project did not provide a link to the RoA project pages in the “top twenty” on the test searches conducted by the evaluation panel.

4. Case studies

The impact of any project must be seen in light of the administrative and economic conditions in the recipient country. For a small project like RoA, the academic quality of local research environments and the degree to which local public administrators share research and outreach objectives are strongly linked to the success of the program. To the extent that project objectives include a local development, the existence of suitable local institutions also influences the degree to which objectives can be met.

To some extent, insufficient quality of local research institutions can be compensated for by contracting in researchers with the needed skills (thematic, and with the ability to see the impact of conditions in the recipient country). This has been done in the RoA project in a constructive and productive fashion by having external researchers work closely with local researchers. In addition to the direct positive impacts on the quality of the research done, such a strategy should in principle also contribute to capacity building in the recipient country.

4.1 Case study countries visited

4.1.1 Morocco

Morocco is one of the few countries that had both Phase II modules. As such, it was a key country to visit for the evaluation team. The academic quality of local research environments and central public administrators is high. Moreover, Morocco aims to expand its growing tourist industry, both in current areas with large tourist influence, but also into its rural areas.

The outlook for rural expansion appears good with a diverse country side that has a high potential in terms of eco-tourism based on environmental services linked to agriculture and the natural conditions in general. This perspective is shared by central administrators and local administrators in the local region. There are already some experiences with such initiatives at the local level that suggest that such an expansion is feasible.

Establishing a framework for internalizing environmental services is the long term aim of RoA II in Morocco. As agriculture grows and the economy grows, environmental degradation is seen to take place, as hypothesized by the project.

The timing of the RoA II project in Morocco is good for the following reasons:

- The RoA project concept, methodology and initial results are in a strategic position to help government in promoting sustainable development and poverty alleviation objectives. At the policy level, RoA concept is understood and appreciated by policy makers, this is important in advancing the concept into implementable strategies. Comments gathered were that RoA could investigate both positive and negative externalities. At the national level, the National Strategy to 2020 incorporates sustainability issues and agricultural growth strategies, issues that the RoA project also addresses. The President of this group has emphasised the need for empirical research in the operationalization of the strategy; and therefore looks forward to more inputs from the research team.
- Current agricultural policy priorities are about water and the diversification of agriculture. To meet trade agreements, cereal land conversion to olives was given high subsidies in terms of planting materials, irrigation and fertilizers. This shift to perennial crop can release labor from agriculture and could pursue tourism activities. In the case of irrigation, small irrigation facilities will also be given substantial subsidies, so farmers can adopt drip

irrigation and conserve the surface water irrigation. This has also some impacts on the competing use of water as tourism increases. These are some of the policy issues whose empirical support can also be tackled by the RoA methodology.

- The likelihood of utilization of RoA research results in Morocco is high. Researchers are closely linked with policy makers in the agricultural and rural development sector in Morocco. Ministry officials in the Ministry of Agriculture and Rural Development recognize the role of scientists in achieving the goals of the National Strategy 2020, as most of the ministry officials we visited were scientists themselves once in their previous lives. Several key officials also hold advanced degrees, suggesting that the capacity to utilize research insights is high.
- On the process of research result dissemination we note that many RoA concepts already are highly integrated in the policy recommendations of the Ministry of Agriculture and Rural Development, and the Ministry of the Environment Ministry. This is for example manifested by a multi sector committee that advises the government at the policy level. Operationally, however, there is no body to coordinate inter ministry cross sectoral activities. Morocco does not have a data base for policy development of issues that cut across several ministries. There is no clearing house for research results from the different outfits that feed into one integrated institution, i.e., for the environment.
- On the local level implementation of the National strategy, the review team's visit to the field study site in Marrakesh gave several learning points. At the provincial level, there were at least three big foreign funded projects that are concerned with rural development. These projects are done with the participation of local community members. Components of the projects included human capital capacity building, infrastructure development (irrigation, roads and domestic water supply), and promotion of natural resources management technologies for agriculture, such as terracing. Terracing promotes efficiency in small holdings of 0.1 to 0.4 hectares per farm. It is also an example of a positive environmental service of agriculture.

To maintain local participation and enthusiasm it is important to show concrete results or potentially useful methods. One example of such benefits from the RoA work includes valuation of local products such as honey. The current development project also gives micro credit for women who may want to do small business in the area. Training on cereal processing is also done. This rural entrepreneurship can be a head start for local communities wanting to provide agro based industries to tourists. These are the direct benefits of tourism in the area. An extension of the RoA to quantify value of subsistence goods, including local recipes such as couscous; as well as valuation of environmental services that can take the form of tourist taxes can complement the development work now on going in the study area.

At the more abstract level we point to the RoA capacity building in terms of awareness of non market values, most notably linked to agro tourism and the beauty of the landscape with agriculture plots, and the direct benefits to the sector will be the increased demand for local foods and demand for local products such as honey. With increased tourist arrivals, there will be intensified agriculture and there will be other negative externalities such as degradation of the ecosystem that also need to be valued (assessed some costs). Agro tourist communities such as these in Morocco would need local development strategies that will capture both the positive and negative externalities and this is recognized at the local level. Most of all, these net benefits should be duly given to the communities for them to have incentives to safeguard their community's natural resources.

Bridging the seemingly abstract issues with the local levels appears to be key to making RoA recommendations operational. Given the lesson from the field study, a community based approach to sustainable development of the tourism areas appears wise. The primary reason for this is that unless the local communities or local entrepreneurs can capture (some of) the rents from ecosystem services, there are few incentives at the local level to manage the resource base in a way that secures these services for the future. At the same time, the resource base is likely to come under increased pressure as incomes in the area increases. Balancing growth and environmental considerations therefore appear to be part of the future challenges of follow up projects to RoA, by the FAO or other institutions. The RoA project has contributed strongly in terms of underscoring the importance of local rent capture from environmental services.

During a round table discussion involving key officials from the Ministry of Agriculture and Rural Development, the Ministry of the Environment and associated institutions revealed awareness on these issues. It is, however difficult to assess how much of this awareness that should be credited the RoA project.

A related issue is how RoA insights could be used in developing policy. The round table participants were clear on the need for fitting policy instruments for improved environmental management. In addition to the standard instruments of environmental taxes (and subsidies), the focus was on increased dialogue with other ministries along two lines: (i) feasibility studies for project based interventions, and (ii) more organization at the community level that will capture the benefits of agro tourism. There was no consensus as to which will be the optimal strategy, but round table participants agreed on the need for more research on this following the RoA approach.

Regarding more specific aspects of future work, there was agreement on the need for more community based research activities to develop market instruments for the tourism benefits to be captured by the community; organizational research that will support the local infrastructure that will manage the tourism, and the role of both the local and the national governments in promoting public sector investments in the tourist areas. A pilot case study on contingent valuation was explicitly mentioned to better identify demand for non market products, and in turn come up with recommendations for local tourist taxation. It is deemed important for local institutions to evolve to particularly take charge of the development with funding from these local taxes. The research framework could also be guided by the collective action literature, i.e., in the management of natural resources by local communities. It is recognized that research capacity for environmental economics field is quite deficient in Morocco.

The most visible short term impacts from RoA II on capacity building at various levels are:

- An increased awareness of the roles of agriculture beyond production, among the policy makers. Empirical work done and the methodology developed can now be replicated for other regions of the country, where ecosystems, rural structures, etc. differ from the primary RoA II study region on environmental services.
- There is also awareness to modify the national income accounts to give quantification of the other services of agriculture. Currently, only the production aspects are of environmental services are included in the income accounts, and even these are believed to constitute underestimates.
- There are increasing multi sector activities, and the RoA work reinforces this institutional set up. A recent example in this connection is water, where intersectoral forums have been implemented. The Ministry of Agriculture is heavily involved in these activities as agri-

culture is a heavy user of water. A specific gain from RoA is a better framework for water pricing in agriculture; which currently is not charged for its use of water for irrigation.

A generic finding from RoA is the need for additional policies to better internalize positive and negative externalities from agriculture and eco-tourism. This is more easily done if institutions are in place to support community level initiatives.

The potential for eco-tourism must also be seen in terms of the macro economic trends, impacts of changes in international trade regimes, etc. There is a strong perception of linkages between environmental services and poverty alleviation in Morocco.

The Moroccan partner on the poverty alleviation module has chosen to implement a CGE modeling framework rather than a multi-market module to study the overall impacts on the Moroccan economy. This choice appeared well motivated at first sight for two reasons (i) a multi-market module was already in place for the Phase I, and (ii) it has the potential of providing additional insights about the suitability of the multi-market framework by enabling using both modeling approaches to assess the macro economic impacts. Here, we also remark that there is substantial knowledge and experience in Morocco on CGE modeling.

Delays in allocating the funds to the researchers for the RoA II poverty alleviation module in Morocco imply that there are no results yet available from this work. Hence, it is difficult to assess if the potential insights of a comparison of the multi-market and CGE frameworks will be achieved. We are a bit critical in this respect for two reasons. First, the existing multi-market model is an early version of the framework developed within the RoA II project. Therefore, such a methodological comparison will not be "fair" to the multi-market model as it compares an older version with a newly developed CGE model. Second, the CGE model will be developed so late in the project that there will not be sufficient time to undertake the preparatory work needed for a meaningful comparison.

Our meetings with Moroccan national level policy/decision makers and researchers revealed little enthusiasm and support for multi-market modeling approaches for estimating poverty alleviation and overall welfare impacts, even for use in local projects. There are two reasons for this as far as the evaluation panel sees matters. First, there is a growing field of local level CGE modeling. The rationale for this is that policies that have real impacts at the local level, will alter prices for the part of the economy that is not fully integrated in larger markets, for example some livestock, and perishable products that primarily are sold locally (see Lofgren and Sherman, 1999, for details). Second, the Moroccan research partners on the PAFS module are highly competent CGE modelers. Together with local CGE modeling being a growing field, the perceived "academic rewards" are higher for CGE approaches than for multi-market approaches. To further strengthen this potential, several top CGE modelers have worked with the Moroccan CGE modeling team, including Lofgren (see Lofgren, 1999).

The FAO office in Morocco was extremely facilitative during the team's visit. FAO officials were closely linked with officials of the Ministry of agriculture and rural development. Relationships with the other ministries, such as finance and the environment can be developed further.

4.1.2 Indonesia

Indonesia only had the PAFS module under RoA phase II. The country faces several large challenges in terms on poverty issues over the next years. Some background information helps explain the surprising low awareness in Indonesia about RoA.

- Indonesia is a country in economic recovery from the Asian financial crisis that severely hit the Indonesian economy in 1997. Since the change in the political regime in 2000, Indonesia has implemented two reforms in terms of governing systems: decentralization and disintegration of government organizations. The former large Ministry of Agriculture was divided into three new ministries: Ministry of Agriculture, Ministry of Maritime and Fisheries, and Ministry of Forestry. Each ministry now pursues its own policy goals. The former powerful central planning agency, the State Ministry of National Development Planning (BAPPENAS), was no exception. BAPPENAS now characterises itself as providing strategic planning expertise for the national macro economy, including that on agricultural and food policy issues, and as a coordinating body for governmental ministries and national and local governments. The Indonesian government has a 20-year, long-term plan from 2005 to 2025, a mid-term plan from 2005 to 2009, and an annual action plan.
- Indonesian agriculture contributes 11% (16% including fishery) to its GDP and 44% to the nation's total employment. Agriculture's high share of the total employment indicates that agriculture has a major role in terms of welfare of the people, especially in rural areas. The Indonesian Ministry of Agriculture has three main programs with regard to agriculture: food security, agribusiness, and farmers' welfare. Regarding the first and the third programs (pillars in the terminology of the Ministry of Agriculture), one challenge of the agricultural policy in Indonesia is conversion from the traditional rice-centered policy to a more diversified production policy, such as that involving livestock and vegetables, to secure food safety and promote the alleviation of poverty in accordance with the WTO framework. To implement the reform agenda appropriately, it is highly necessary to conduct ex ante evaluation to understand its impact on the agricultural sector.

As such the timing of the PAFS module of RoA appears good. The PAFS module provides a very good opportunity for farm policy researchers in this country to conduct simulation analysis of this policy reform agenda. The research was conducted in two stages. The first stage aimed at reviewing the connection between a quarter-century history of Indonesian farm policy and trends of poverty alleviation (Rusastra *et al.*, 2005). This review successfully clarified the background for model building at the second stage.

The research that the RoA project implemented was intensively supported by the FAO headquarters for software training and multi-market model building, which constitutes a capacity-building process for local researchers. Our meetings with officials revealed awareness about the advantages of using multi-market models over CGE models, in particular related to data requirements. The multi-market model has fewer data-demanding characteristics than the CGE model. Another perceived advantage is that the multi-market model enables researchers to use commodity-based analysis, which is an essential condition for agricultural diversification policy analysis.

Regarding the work under RoA in Indonesia we note the following:

- The research aims of the multi-market model were compactly stated, and the multi-market model has been appropriately used to estimate the impact on the production diversification policy from rice to other crops by incorporating their own database derived from the National Farmer's Household Survey (PATANAS). PATANAS generated farm panel data accumulated by the institute that implemented the research, i.e., Indonesian Center for Agriculture Socio Economic and Policy Studies (ICASEPS). PATANAS is considered to be a public good that have been accumulated by international research cooperation with a wide range of research institutes abroad. The early output of the RoA research has started

the clarification of the effects of the production diversification policy on farm households; the middle class and lower income groups are better off.

- Preliminary findings from the Indonesian PAFS model also suggest that diversification will not threaten food security as far as it improves farm household income. An implication of this finding is that the infrastructure to support a more diverse agriculture should be improved, and that R&D should be expanded to further enhance diversification.

The quality of research is sufficient to be applicable for policymakers, such as BAPPENAS, and to be utilized as an educational training tool for neighboring higher academic institutions of agriculture, such as Bogor Agricultural University. The RoA research-implementing body, ICASEPS, holds inter-linkage meetings with policymakers from various ministries and issues several types of academic periodicals and booklets for policymakers. These downstream efforts are quite effective for dissemination of RoA research output. Further, since ICASEPS already has underway research collaborative projects with various foreign research institutions, RoA project output can be referred to as coming from new studies along with accumulation and utilization of the PATANAS panel database. In short, it is safe to say that RoA research using the multi-market model established firm ground for quantitative understanding of the agricultural sector in Indonesia and presented an effective set of tools for farm policy analysis.

On the short term effects of the RoA project in Indonesia we note that the project has exerted benefits on capacity building for policy research analysts by way of multi-market modeling. These benefits have ripple effects on younger generations studying agricultural economics and public policy issues not only in the institute, but also in concerned neighboring universities.

The policy analysis tool built by the RoA project will also benefit policymakers if further dissemination efforts are made in the near future. It is apparent that ICASEPS has such capacity.

The long-term impact of the RoA Project at the moment is limited to poverty alleviation and food security aspects. Ministries concerned emphasise these aspects over environmental service issues in general. This trend is unlikely to change quickly unless the Indonesian economy grows fast for a prolonged time, i.e., the current positive growth is not hampered by some exogenous shock. At the same time, however, the concept of agro-tourism gains gradual recognition among farmers and policymakers. In this context, non-farming and service activities such as agro-tourism should be included among the diversification policy options in the future. The extension of multi-market models for such direction will be effective to integrate two roles of agriculture, poverty alleviation and environmental service, in the long run.

The FAO in Indonesia sees a potential for the RoA project. At the moment, however, the Indonesian FAO office focuses on the Avian influenza, an immediate short term concern in a country with a large informal poultry sector. This is understandable given that Indonesia has had the largest toll in casualties due to the avian influenza among Asian-Pacific countries.

On the administrative side, there have been no administrative difficulties that were brought to the attention of the evaluation team. This is quite contrary to the situation in many of the other countries involved in RoA. Our impression of a local FAO office that is capable and focused was strengthened by the way the evaluation team's work was organized, and their ability to cope when senior officials we were to meet could not make appointments due to unforeseen changes in their schedule.

4.2 Case study countries not visited by the Evaluation team

EIS module case study countries are Kenya, Uganda, Mexico, the Philippines, Panama, Bhutan, and Morocco. The latter has already been addressed in Section 4.1.1 as Morocco was visited by the Evaluation team. PAFS module case study countries include Egypt, Paraguay, Morocco, and Indonesia. The latter two studies have already been addressed in sections 4.1.1 and 4.1.2 as Morocco and Indonesia were visited by the Evaluation team.

4.2.1 Kenya

The Kenyan case study (Bulte, Boone, Stringer and Thornton, 2006) deals with compensating the Masai for not adopting agricultural practices that conflict with wildlife management objectives. This is a very focused study as the conventional practices of the Masai (herding grazing domesticated animals) are conducive to coexistence with wildlife, while the alternate practice (fenced farming) is not. The case study area attracts around 200,000 visitors per year, making it feasible to have visitors pay a small access fee to sponsor current Masai practices. A one US dollar increase in the current access fee of 30 US dollars suffices at the moment for the participation constraint to hold.

This access fee increase is the payment for environmental service (PES) instrument in the study. The Bulte *et al.* (ibid.) findings appear quite robust, and the research is well carried out. Finding non-public funds for paying for environmental services is particularly important in developing countries where the marginal costs of public funds often exceeds a factor of two.

The large extent and orientation of the Kenyan case study under RoA was made feasible by close linkages to ongoing related research in Kenya with external funding. The existence of these other projects made it possible to attract international renowned researchers to work on the Kenyan study. The evaluation panel has some doubts about the local capacity building of the Kenyan case study in the short run. In the longer run there is a large potential for this anchoring as one of the RoA researchers has attracted a large non-FAO funded project to test the preliminary lessons of Bulte *et al.* (ibid) further, as well as testing other PES instruments.

4.2.3 Uganda

Similar to the Panama case study (see Section 4.2.6), the Uganda case examines the role of environmental services incentives in the protection of water quality in its Pallisa district. A working paper already exists for this study (Antle and Nalukenge, 2006).

The study has three goals: (i) to test whether the payments for environmental services (PES) can be a viable alternative to the conventional command and control strategies; (ii) to determine the effect of the PES on poverty reduction among poor farmers; and (iii) to establish whether local institutions are able to support PES, and if not, determine the capacity building needs of the community.

Pallisa's agro-ecological resources are heavily degraded due to extensive economic activities to support an increasing population. It is ranked among the poorest in the country. The agro-ecological resources include products and services such as fish, herbs, and other food products as well as a source of raw materials for construction of residential and commercial structures. Crop yields in the district were on the downward trend due to declining soil fertility as farmers either do not use or inadequately use external soil fertility inputs (inorganic fertilizer). Poor management practices for manure have also been observed.

Both qualitative and quantitative methods were used in the analysis. In particular, simulation models were constructed from econometric production models combined with bio-physical models to estimate the feasibility of PES in wetland resource management. Results are promising, indicating that PES as a policy tool is cheaper than the cost of the monitoring process per year conducted by the public agencies.

Pallisa wetland goods and services are estimated to be worth more than $34 million a year to the district economy. This includes both the direct and indirect use values and value added through processing and marketing of wetland products. The wetlands also provide services such as flood control, water purification, and maintenance of year round water supply for the urban, industrial and irrigated agriculture, and transport. Products from the wetlands include fish, wild vegetables and medicinal plants.

According to the case study paper (Antle and Nalukenge, ibid.) past government policies promoted wetlands degradation through encouraging drainage of swamps, and allowing for wetland reclamation. A new policy framework is needed for wetland sustainability, and to provide a better resource base for agriculture in the area. The government sees the need for new instruments to protect its natural resources. The results of this FAO study suggests a potential use of the PES approach as a policy tool. However, as in many of the other country cases, transactions costs may be high, suitable institutions for such policies need to be developed, and enforcement systems are weak. Antle and Nalukenge (ibid.) suggest that a PES contracting system should consider the "strategic behaviour of recipients, simplicity of institutional design, conflicts of recipients over property rights and implementation costs".

These elements will have to be studied some more if a real implementation is to be done. Development of a workable payment mechanism is important. The use of experiments may provide additional insights on the demand side of various ESIs. Antle and Nalukenge (ibid.) suggest a pilot study to identify the main implementation issues pertaining to PES. Ideally, the government should invest in this experimental research, as this approach will support its current policy of sustainable wetlands development.

There appears to be a value added potential of further research on the use of PES for wetlands management. Additional cases may allow for developing a PES matrix and identify common themes, as in meta analysis.

The draft paper (Antle and Nalukenge, ibid.) is of excellent academic quality, with a clear potential for several peer reviewed articles based on its results.

The project in Uganda is based at the Makerere University, and work started effectively in January 2006. There were some administrative problems. Most notable, the university did not give FAO a fixed administrative charge. There were also delays in project releases, but was due to in country transactions, rather than FAO. The project is leveraged by a USAID project that John Antle already has going in the area. The data gathered from the USAID project fitted well with the needs of the RoA project. This allowed for spending the RoA funds on local workshops, and time and travel of the local counterpart.

4.2.4 Mexico

The Mexico case study (see Alix-Garcia, de Janvry, Sadoulet, and Torres (2005) for details) sought to assess the performance of the direct (actual) payment scheme for watershed services across the whole country. The financing source for the payment scheme was the water fees to be paid by downstream farmers from increased supply of water. If the cost to upstream farmers of abstaining from logging is less than the downstream water users' willingness to pay

for increased water supply, there should be room for Pareto improvements by initiating a PES.

The beneficiaries of the payments are the owners of the forests in Mexico. Forests are of three types: protected areas, community forests and the private owned forests that are for commercial plantation. The Mexican program provided direct payments to both the communal land and the privately owned lands. In 2003 a total of 271 PES contracts were established in 15 states, with applications for similar PES from 10 additional states. The enrolled forest lands cover 126,818 hectares, and accounted for only .35% of the total forest lands in Mexico. Commonly held forests made up 47% o the entire contracts, and 93% of enrolled areas. The total payment made during 2003 was US$3.7 million. An average contract covers 468 hectares, and each contract received on the average US$13,495.

The study results suggest that Mexico's PES program could still be improved in terms of its policy design. Some of the key lessons pointed out were in the area of the political economy, financing scheme and targeting of the recipients. Institutional constraints made it difficult for the design of the payment to be made after the period (say a year) of conserving the forests. Moreover, sustainability of the funding scheme was not assured. Still, the number of applications for similar schemes grows, and the government has prescribed annual fixed funds to increase the security those not logging receiving their compensation.

Targeting is however a problem as some of the current participating forests areas were not deemed to be of high risk of deforestation.

It was important for the RoA sponsored study to point out important flaws of the existing program, and the need for more research on the alternative payment schemes. It is not known whether the payment schedule is the appropriate one. One of the policy conclusions is that calibration of the payments must take into account that forests at higher risk of deforestation, i.e., with a greater opportunity cost, will require larger compensation payments.

The study authors (Alix-Garcia, *et al*., 2005) argue that water consumers who benefit through lower long term prices associated with preservation of their drinking supply, may exert an influence on policymakers either directly or indirectly through the water providers. Water is the responsibility of the municipal authorities, because they are either providing the water directly or supervising a private provider. The will to apply such pressure relies on water consumers' understanding of the link between watershed management and water prices. This level of understanding is still low, according to the study.

The study results suggest that “without awareness on the part of water providers and consumers, accountability of forest-holders to provide environmental services will be very limited, and it is unlikely that local markets for hydrological services will emerge”. If the program continues to be misunderstood by recipients, the contracts are likely to be broken and market formation may not take place.

Political economic issues will be relevant as one thinks about the sustainability of this program. The question of the optimal level of management entity seems to be an important issue. While the municipality is responsible for water, the political domain of the source of water supply may cover areas beyond the municipality. Still, municipal level or water district management of this program is worth exploring. In cases where the watershed consists of more than one municipal boundary, i.e., “horizontal decentralization” where groups of municipalities collectively manage this program, can also be studied. In this sense, a legal framework is needed, so that the political color of the management will be minimized. Water

districts could also manage this program. Local management may actually be more sustainable if properly organized.

The study may provide insights on how to better design PES for water services. Of particular relevance is future research on identifying more efficient payment instrument and more cost effective management strategies of the PES program. It could provide policy guidance for the sustainability of the program, which is pioneering, and can be used by other countries in the same situation and same structure of property rights.

The research paper is of high academic quality. It is a nice application in the use of market like schemes for up-stream – down-stream problems, and appears to be publishable in a referee journal after some revisions.

This study represents a special case of institutional arrangement. The RoA funding was used to tell the story about the performance of the Mexico PES program. The Mexican researcher considers himself an associated researcher to the project. He got involved with the project while on sabbatical at the University of California Berkeley. The data have been generated with the researcher (Juan Manuel Torres) supervising the surveys and doing the literature review.

4.2.5 Philippines

The Philippines case study (Fuwa and Sajise, 2006) aimed to come up with plant genetic biodiversity values through the maintenance of traditional rice varieties. It examined the impact of differential payment schemes on genetic diversity and poverty alleviation. The ESI is a hypothetical direct payment and the source of financing is taxpayers. Profit determination functions were estimated to two groups of households, i.e., with and without traditional varieties, using data set from a nationwide survey of 1855 household beneficiaries of the comprehensive agrarian reform program of the country. A sub sample of 1041 rice farming households was used in the analysis.

An estimated profit function without traditional varieties was used to obtain the hypothetical profits from switching from non-traditional to traditional varieties. The bliss compensation payment was expressed as the difference between the expected profits from cultivating non-traditional varieties and the hypothetical profits by adopting traditional varieties. Two different scenarios in terms of type and nature of payments were analyzed. Their impacts on the adoption of traditional rice varieties as well as on the poverty ratio were compared.

Study results suggest that there are significant trade offs between the policy goal of genetic diversity conservation and poverty alleviation. The main reason for this is that high income farmers in favorable areas were the main beneficiaries of the hypothetical environmental payments for reverting to traditional rice varieties were. Fuwa and Sajise (ibid.) suggest that the cost of information requirement for the direct payment scheme is “prohibitively high”.

This case study has high policy relevance. Genetic diversity is recognized to be an important component for the continuous improvements of rice cultivars. Fuwa and Sajise (ibid.) also claim that number of rice varieties has declined dramatically, since the Green Revolution of the 1960s. In the Philippines alone, according to this study, there were “... more than a few thousands rice varieties grown in the 1950s. But today, only two varieties cover 98% of the land planted to rice”.

Some sectors in the Philippines are beginning to be aware of the genetic erosion of both the plant and animal species in the absence of conservation policies. Debate on this issue has

started at the academic level, and is making policy makers aware of the link between proper genetic resources management and sustainable development. As in many natural resources management settings, the role of local institutions will be important.

While the focus of the Fuwa and Sajise (ibid.) study was on the cost side, policy instruments to implement the "benefit sharing scheme" of in situ conservation of genetic diversity as stipulated in the FAO's International Treaty for Plant Genetic Resources are still wanting in most developing countries, including the Philippines. This study's methodology can also serve as a conceptual piece towards development of methods on the benefit side of the issue.

The analytical framework is sound. The empirical work depends on data gathered for the purpose of evaluating the impact of agrarian reform on rice farmer beneficiaries. While the regional dummies in the profit equations captured the geographical attributes, combining observations from the irrigated, rain-fed and upland environments may have resulted to high aggregation errors. Traditional varieties are found in the upland areas, mixed varieties in rain-fed lowlands and modern varieties purely in the irrigated areas. It does not seem proper to estimate for hypothetical irrigated yields and profits in the uplands which cannot, by its natural resource potential obtain the yields of irrigated areas. The converse of this argument holds true in the irrigated areas. The analysis could be fine tuned to segregate income effects by types of environment, if data is possible. Then the environmental payments may be more meaningful and the estimated trade offs may be even more reliable.

The work could be published, but with some strong caveats on data quality, and with analysis of households with more agro-ecological homogeneity, as above.

There appears to be no administrative or logistical difficulties for this case study. The study grant was given directly to the researchers. FAO Manila handled the administrative details including payments to assistants.

4.2.6 Panama

The Panama study just started in June 2006. A final report is not available for review (as of Dec. 1, 2006). Although the project started 8 months ago, until the time of the evaluation team's interview (of December 7, 2006) with the study's principal researcher, Miguel Sarmiento from the Panama Agricultural Research Institute, the memorandum of agreement between the proponent and the FAO has not yet been finalized.

Due to the delayed start of this study, there is yet no draft report available. The evaluation team therefore builds its assessment of this study on the principal researcher's presentation for work done so far and the planned work at the Rome workshop December 6-7, 2006, and on the above mentioned interview of December 7, 2006.

The study is to assess the suitability of the payments for environmental services (PES) for maintaining water quality and quantity in the Panama Canal Watershed (PCW) by reducing soil erosion, and thus preventing soil sedimentation. The environmental service incentive (ESI) is direct payments. Currently, these payments are hypothetical. The proposed source of financing the scheme is an increase of the toll in the Panama Canal.

On the supply side, the sectors of interest are the livestock raisers and the pineapple growers. Pineapple is a main export commodity from the Panama Canal watershed. Pineapple prices are currently favorable, which increases the pressures for expanding agricultural acreage in the watershed. Pineapple is an arable crop, leaving the cultivated acreage open for parts of the rainy season.

Geospatial mapping and econometrics are to be used to estimate cause and effects models that link land use and the water services. In turn, the estimated foregone profits from not expanding agricultural acreage for pineapple will be used to assess PES scenarios under the alternative land uses. On the "demand side", the activity was to map out the organizational and other mechanisms for a PES scheme.

The Panama case study could have benefited from insights gained from other studies, also within the RoA project, in further targeting study objectives and approaches. The Mexico case study (see Section 4.2.4) appears particularly relevant in this case. The evaluation team is surprised that the central RoA project management in FAO/Rome has not sought to utilize this opportunity. It would also have increased the overall research insights by the possibility of testing the performance of utilizing cross case study results. This is quite common in the contingent valuation literature (see for example Ready and Navrud, 2006).

Policy guidance to date includes recommendations on reforestation by subsidies to improve water quality. From a policy relevance perspective it is worth noting that Panama already has a national strategy for PES. The RoA project case study in Panama complements another project whose aim is to determine the viability of agribusiness in the watershed. This larger project seeks to do more detailed studies on producer attributes, what technologies are needed, and the impacts of these on the environment.

While PES can be a useful instrument to evaluate/design/establish processes to compensate the producers for not practicing intensive agriculture, the (local) institutions for implementation are yet not in place. The system of environmental governance is decentralized. This raises several questions regarding the role of the Panama Water Authority relative to PES, and how the hypothetical PES fits with planned institutions.

Here we note that Panama is a special case as there exists a semi-private entity, the Panama Canal Authority, that has funds available to compensate the farmers. The problem is that they do not have sufficient information on how to design these payments without attracting excessive entry of farmers into the canal zone.

4.2.7 Bhutan

This case study deals with the interaction between agriculture and wild animals (various types of boars and other animals damaging crops, and large predators damaging livestock). A special feature of this case study is that it is the only country wide ESI module project. This case study has just started, and no written documents are yet available. Plans for the work and preliminary results from surveys among Bhutanese farmers on their attitudes and ways of reducing damages were presented at the RoA phase II final workshop.

Due to cultural and religious reasons, reducing the problem by killing the animals causing the damages is not an option. At first sight this makes this project somewhat special. However, there exist parallel situations in other countries. A notable case in that connection are the compensation schemes given to Swedish Sami people to reduce their (economic) losses from wolves predating on their reindeer, and to induce some similar mitigating strategies as wolves are a protected species in Sweden. Further details on this can be found in Boman, Bostedt and Persson (2003).

4.2.8 Egypt

The PAFS module was adopted in Egypt. This module has sought to develop tools for policy analysis that can help in providing an ex ante assessment of the extent to which agricultural policy reform scenarios can strengthen the link between agricultural growth and alleviation of poverty and maintenance of food security. The Egyptian case study utilizes the FAO multi-market model framework to assess the impact of wheat import liberalization with multiple scenarios and examined the effects on poverty alleviation and self-sufficiency. See Siam (2006) for details.

The multi-market model can be a very effective and appropriate tool when data scarcity is serious. This is a common situation in developing counties and this feature of demand for less data fits well with policy analysis in those countries compared with CGE models that always require large amounts of data. The Egyptian case study fits this setting. The study was appropriately focused upon the current issues and the conclusions were relevant.

Wheat is the most important foodstuff in Egypt. Egypt has been one of the largest net wheat importers because domestic wheat production has not met demand. It is, thus, essential for Egyptian policymakers to simulate the impact of imperative agricultural policy reform on its main domestic agricultural sector to appropriately cope with trade liberalization under the WTO framework. In this context, the policy relevance of this study is quite high in terms of timing of the study and of compliance with policymakers' needs.

The Egyptian case study utilizes the multi-market model features to a large extent. The research reports from this study (Croppenstedt, 2005, 2006; Siam, 2006; Siam and Croppenstedt, 2006) meet academic standards in the quality of research. The study framework, methodology and obtained conclusions all appear sound.

The in country research implementation was done by a professor Siam at Cairo University. He expects that through his post as a government policy advisor, the insights from the RoA research are likely to be reflected in the policy making process. Another advantage of this country study is that it created a learning-by-doing process for this policy analysis model for graduate students. This capacity building process is augmented as many of these students will go on to become future agricultural policy analysts of the country.

Cooperation with FAO/Rome was excellent, and no major difficulties were expressed with regard to logistics.

4.2.9 Paraguay

The Paraguayan PAFS study is implicitly part of a larger modeling effort to improve the ex ante quantitative assessments of agricultural policy reforms. Its contribution into this modeling suite is the multi market modeling frame. Paraguay is in the fortunate situation that it already has a vibrant economic policy modeling community.

The RoA research in Paraguay benefits from this high modeling competence. Moreover, Paraguay has an integrated farm household database that has been built by intensive surveys. This farm database enabled researchers to conduct a statistical micro-simulation based on the employment results with a CGE model that is far more data-demanding that the multi-market model.

The Paraguayan researcher (José Molinas, currently at the World Bank) interviewed by the evaluation team, made it clear that the RoA multi market model framework complements other models in Paraguay. As such, it widens the scope of the ex ante impact evaluations of

possible policy changes. This variety of simulated scenarios characterized the RoA related research in Paraguay.

As a result of the strong Paraguayan modeling environment there are a multitude of RoA publications from Paraguay. The evaluation panel particularly point to Bresciani, Molinas and Cabello (2006) for a summary of the work done in Paraguay, and Molinas (2005) for an example of the application. The latter fully illustrates the above model framework complementarities in an applied fashion.

The Paraguayan modelers also have strong linkages to IFRPI, giving excellent access to the IFPRI CGE model frameworks, and allowing the macroeconomic impacts to be broken down to the micro-simulation level by taking advantage of the integrated farm household database and household level CGE modeling framework (Lofgren and Sherman, 1999).

A special note on the organization of this research in Paraguay. Most researchers associated with RoA were originally from a non-governmental think-tank institution that is frequently used by the Paraguayan government. The non public stature of this research institute allows for more flexible wages and work arrangements, thus making it easier to keep key researchers than in a public institution.[4] The Minister of Agriculture in Paraguay acknowledged the importance of policy making firmly based on scientific results and expressed his willingness to utilize the RoA project research output for his ministry's policy making. This relationship between policymakers and non-governmental think tanks suggests one possible route of dissemination of RoA project research output and a scientific knowledge base that will aid in capacity building in ministerial policy units.

No major difficulties were found in the logistics while conducting the RoA project.

4.3 RoA final workshop

The RoA phase II final workshop was held in Rome December 6-7, 2006 prior to the completion of the project. It was well organized, and – as far as the review team could observe – insightful for most (workshop) participants.

The quality of presentations usually is improved if all the *planned* research providing the base for a workshop has been undertaken. Several of the country case studies were still running, and the project summary papers were in draft form. In particular the environmental services module summary paper was far from being completed. This was to be expected given the high complexity and novelty of this module.

There are also some benefits from having final workshops take place before projects are completed. For a project like RoA II with many case studies, it provides a double avenue of exchanging information. Specifically, for the project summary paper one gets direct feedback from country case studies, identifying points that otherwise may have been lost. For the case studies researchers a workshop close to the end of a project provides an excellent opportunity of communicating with other researchers and invited policy makers/advisers.

The review team would also like to point to the potential of a late stage workshop as a vehicle of identifying carry over impacts between case studies and across modules. In our discussions with case study researches, several carry over impacts were brought on the table. Finally, the workshop provided the review team with an opportunity to meet in person with representatives from most country case studies early in the evaluation process.

[4] Here it should be noted that despite this flexibility and higher wages, José Molinas (a key researcher in the Paraguayan part of RoA) has moved to the World Bank.

5 Project organization, management and use of resources

5.1 Project organization

The RoA phase II project was organized in two modules, environmental services (ESI) and poverty alleviation and food security (PAFS). The rationale for these two modules has already been dealt with in chapter 2 of this report. Dividing the project into two modules yielded some obvious advantages in terms of the daily management of the project, but also some challenges in terms of coordination actions on the two modules. This was particularly evident in terms of securing that the PAFS module would be adapted to analysing poverty (alleviation) impacts from environmental services.

5.1.1 Overall project management

On paper, the project management appeared sufficient. The ESI module was the larger of the two modules, and adding a third person besides the module leaders to lead the whole project would have diverted resources away from research. This does not imply that management of the entire project should have been placed in this module. In hindsight there are two reasons for this. First, during the entire (phases I and II) project, there were three leaders of the ESI module. This implied that the project leader changed equally many times. Second, with the ESI module being the most complex and novel in terms of new applications, it may have been wise to place overall project leadership in the smaller PAFS module, in particular later in the project when it became evident that the PAFS leader represented the continuity of leading persons involved.

It is the review team's impression that the level above the project leader did not pay sufficient attention to the managerial challenges in RoA II, in particular after it became clear that the first phase II project and ESI leader had accepted a position outside the FAO. Unfortunately, these kinds of errors are frequently made in research organizations. After a project has been acquired and a project leader has been appointed, managers at higher levels too often leave projects for “a life on their own” unless there is clear evidence that matters are really going wrong.

In the case of the RoA II project it should at least have been discussed to move the project leadership to the PAFS leader to ensure more continuity in the project leadership.

5.1.2 Management of the PAFS module

The PAFS module greatly benefited from having continuity in the module leadership. Being the smaller of the two modules with three country case studies, all initially planning to utilize the same methodology, it also appears to be the easier module to manage.

This impression is manifested by all country case studies (except Morocco) starting reasonably early in phase II.

In the case of Morocco, the delay in the startup of the PAFS module can largely be attributed to administrative difficulties in Morocco. The administrative problems on the Moroccan ESI module support this assertion.

The selection of country case studies appear to have been based on two factors, the research capacity on economy wide modeling in candidate counties for the case studies, and the administrative capacity of the local FAO office.

5.1.3 Management of the ESI module

The ESI module was the larger of the two modules, being allocated approximately 70 % of RoA II funds, and with seven country case studies. It had no unified methodological frame, further augmenting the management challenges in the project.

The lack of continuity in the leadership, with the module leader leaving less than a year before the planned completion of the project further accentuated the management challenges. As the ESI module leader also headed the entire project, the responsibilities cast on the new ESI module (and project) leader were unreasonably large.

It is well accepted that few developing countries have research institutions with strong research departments on the environment, let alone on environmental economics. In Chapter 3 we have already addressed the need to emphasize quality research over capacity building. Hence, the choice made by the Randy Stringer (the first ESI leader in RoA II) to seek countries with ongoing studies that could fit RoA II objectives appear well taken. The limited availability of funds for the country case studies strengthened the rationale for this approach.

This approach, however, was not costless. First, it made country case study topics more diverse than what one initially had planned for in the project planning. Second, it delayed the selection of country case study partners. The impact of these delays were augmented by administrative delays (late signing of contracts), in particular in the cases of Bhutan, and Panama. For both these countries there was therefore not even a first draft paper version available for the final workshop.

5.1.4 Management and administration of the country case studies

In the previous two sections we have pointed to significant delays in the start up of the country case studies. For Morocco these delays were primarily due to internal Moroccan problems on getting funds from the responsible institution to researchers. Whenever such recipient country internal problems arise, the FAO may consider punitive steps in terms of withdrawing research funds from institutions that are unable to undertake the administrative responsibilities within a prescribed time period. To avoid local researchers being unduly affected by such steps, one may consider alternate ways of getting the country case funds where they belong – to the researchers contacted to do the work.

In the cases of Bhutan and Panama, part of the difficulties appears to be FAO internal (slow signing of contracts or the much talked about “red tape of the FAO”). The review team is external to the FAO, and therefore enjoys limited experience with such problems. Still, the FAO, like any other organization, needs to have a careful look at its own administrative routines if there is the slightest possibility that the core of problems is internal.

The review team would also emphasize the particular responsibilities of dealing with developing countries. First, if the FAO is inefficient, one sets a bad precedent for what is acceptable administrative practice in these countries. Second, as (research) institutions in developing countries generally are poor, they have limited possibilities of starting the work unless funds are in place, or at least contracted. In turn, this may adversely affect those researchers who are to be involved in the research projects.

5.2 Project use of resources

Table 5.1 shows the overall budget and the use of resources for RoA II. As the project is not yet completed, the 2007 budget is also shown to enable a comparison between the budget and projected use for the entire RoA II project.

Table 5.1: Budget and projected expenses in US $
("Proj.Exp." equals expenses through 2006 plus projected expenses for 2007,
"Difference" equals Total Budgets less Proj.Exp).

Items	Descriptions	2004		Budgets	Expenses			Difference
		Budgets	Expenses	Total	2004-2006	2007 pro.	Total pro.	
Salaries Professional	Salaries Professional	528,655	528,655	1,312,769	1,296,332	58,500	1,354,832	-42,063
Salaries General Service	Salaries General Service	101,848	101,848	367,995	348,751	30,000	378,751	-10,757
Consultants	All type of contracts, internal and locally recruited	45,458	45,458	464,969	534,549	34,000	568,549	-103,579
Contracts	Letters of Agreements, contract services	73,411	73,411	381,911	285,952	30,000	315,952	65,959
Locally Contracted Labour	Casual labor/temp.assitance, overtime	783	783	3,179	4,350	0	4,350	-1,171
Travel	Duty travel, non-staff, consultants travel	94,210	94,210	431,591	367,964	30,000	397,964	33,627
Training	In-service training, registration/conference fees	1,535	1,535	38,903	12,050	2,000	14,050	24,853
Expendable Procurement	Office stationary & supplies, books, supplies, copying.	393	393	5,285	4,135	0	4,135	1,150
Non Expendable Procurement	Data processing equipment	11,302	11,302	21,002	17,423	0	17,423	3,578
Hospitality	Catering	0	0	5,189	1,689	1,000	2,689	2,500
Technical Support Services	Project evalutation costs, Adv. technical services	0	0	65,000	28,680	48,680	77,360	-12,360
General Operating Expenses	Conduction of workshops and misc.	7,558	7,558	14,980	11,532	5,000	16,532	-1,552
Support Costs	Project Servicing costs, support costs budget	52,194	52,194	191,484	163,743	10,000	173,743	17,741
General Overhead Expenses	Copyi, fax, tel., pouch, courier, IT services, office suppl.	2,128	2,128	8,860	7,476	1,000	8,476	384
Chargeback	Publications, PC, language training, IT loans, etc.	2,621	2,621	69,769	18,038	20,000	38,038	31,731
Total Expenditure		922,096	922,096	3,382,884	3,102,663	270,180	3,372,843	10,041

The right column in Table 5.1 shows the difference between the budget and the projected expenses (= expenses through 2006 and projected expenses in 2007). The deviations are minor except for an overuse of US $ 103,579 for contracting, and an under use on administrative routines related to contracting of US $ 65,959 and on travels of US $ 33,627. The two contracting items partly cancel each other leaving a net over use of US $ 37, 920. Under

use on travels is a strong indicator that funds have been spent carefully, and may be seen in conjunction with over use on contracting (travels are partly embedded in contracting). With other deviations being minor, the overall use of funds is in accordance with the budget with a total under use of less than 0.3 percent.

A true cost effectiveness analysis would require more detailed analysis of the appropriateness of each budget item. As the initial budget has been approved by the FAO and the donor, the review team accepts the budget to be in line with project objectives.

5.3 Relationship to related projects

5.3.1 Within the FAO

The ESA of the FAO has several related projects, in particular on issues related to the PAFS module. There has been some overlap personnel use on these other projects within the ESA division. Comments at the final workshop suggest little interaction with similar projects, for example under the policy division. Insufficient contacts across division borders to secure better use of FAO and project resources are formally the responsibility of division leaders, not project leaders. Discussing the internal organization of the FAO is beyond the scope of this evaluation.

On the ESI module, there appears to have been good communication with lead researchers on environmental economics and the project. Fixed FAO staff has contributed significantly on RoA II.

5.3.2 Ongoing projects external to the FAO

There has been a clear division of labor between the World Bank and IFPRI on one side with their CGE approaches, and the PAFS module with the multi market model framework on the other hand. In countries, e.g., Paraguay, with strong quantitative modeling on economy wide impacts, the comparative advantages of the various modeling approaches appear to have been well utilized.

The ESI module is a bit different in the sense that there is no dominant agency undertaking research on environmental issues in developing countries. The deliberate linking of the RoA II ESI module to existing research and associated internationally well reputed researchers suggest excellent awareness on ongoing research.

5.4 Summary on managerial and administrative matters

The use of funds is well in line with the budget, and there appears to have been good awareness of ongoing non-FAO research on both modules with an implicit objective of not duplicating work of others. In the case of the ESI module, the RoA II research has complemented existing research in a way that appears to have created added value for RoA II as well as these other projects.

The review team has some doubts about the communication to other FAO divisions related to the PAFS module. If there is insufficient FAO internal communication the obstacles for this need not to rest with the RoA II project or the ESA division. This review panel regards this

as a matter outside the realm this review, but rather an issue to be dealt with by the ongoing evaluation of the entire FAO.

Given the complexity and novelty of the ESI module, and as the project progressed, the lack of continuity of leadership of RoA II and the ESI module, the ESA division should have been more active in terms of assigning project leadership to the PAFS module leader, thereby freeing capacity of the ESI module leader.

6 Recommendations for the future

6.1 Short term

The RoA project has made significant contributions to understanding the roles of agriculture in developing countries. Phase I in terms of the conceptual design, and phase II in terms of doing good empirical work based on the concepts developed under phase I. These are not minor achievements given the limited funds for the project.

To get the full benefit of these findings the foremost dissemination and outreach activity is to publish in peer review articles. Several of the draft papers from phase II have the potential of being published, and thereby read by other researchers. Publishing with the developing country partners enhance their academic reputation and makes it easier for them to attract other international partners. This way the RoA project would help increasing the overall research done on the issues that have been dealt with within the project.

The second part of the short term strategy is to assist case study researchers in creating increased domestic awareness of the insights gained and the tools and models developed. There are two benefits from this. The primary benefit is more policy decisions becoming knowledge based, thereby increasing the likelihood of decisions that help alleviate poverty and improve the management of the environment in developing countries. A secondary benefit is that it would increase national and regional decision makers' use of domestic research capabilities. That is the foremost measure towards securing a more sound financial base for research institutions in developing countries.

Policy workshops can also be staged in countries where research results were found to be robust. Further, RoA research output can be utilised for educational purposes of students as well due to its eye-opening prospects on the enlarged roles of agriculture.

6.2 Longer term

The results and insights gained from the RoA project are promising, and substantial research capacity has been gained in the ESA division of the FAO on environmental services, the use of non-government funds for securing these services, and on poverty alleviation.

It would represent a substantial loss if the FAO were not to build on these insights. Securing outside funding is time consuming and risky. The first step in a long term strategy would therefore be to allocate FAO internal funds to secure that staff is available within the FAO to develop follow up projects of RoA.

The chances increase of securing funds for a new project on environmental services and associated instruments, and poverty alleviation modeling by seek cooperation with IFPRI (and other CGIAR research institutes), the World Bank and the OECD.

The RoA project is to a large extent a forward looking. If the FAO is to conduct such research in the future, the Review team views the RoA project as a good example of the kind of topical orientation that is needed with its emphasis on the environment, poverty alleviation and food security. In particular, it is necessary to conduct further research on how to connect environmental services to income generating process for poverty alleviation in a more sustainable manner.

The potential effects of global climate change is a prime illustration of the need for forward looking research on environmental impacts in the FAO's research that environmental issues are becoming increasingly important. Moreover, possessing tools to be able to analyse policy impacts ex ante with limited data in a changing political environment is key for being able to assess the impacts of the other activities the FAO engages in.

For years to come many developing countries will not have the necessary data availability and large scale data quality needed for running disaggregated computable general equilibrium models. The multi market modeling framework developed under the PAFS module in RoA is a feasible modeling strategy under such settings because it requires far less data than is the case for computable general equilibrium models. Rather than using a data and computing wise demanding approach, the multi-market model framework acknowledges the limited resources available for this kind of research in many developing countries. The multi market modeling framework developed under RoA phase II is also able to utilize the information obtained from global trade models in the agricultural sector. This is clearly seen in relation to the GTAP model, where the resulting commodity price vector from GTAP can be used as parts of the inputs to the multi market model.

In summary, the review team sees a large potential for the FAO in research on the named topics. The FAO is in a unique situation to help form north-south and south-south research and policy analysis networks.

7. Literature

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Appendices

A.1 Evaluation team's “Terms of reference”

A.2 Project publications

A.3 Persons contacted/Interviewed

A.4 Itinerary of evaluation team

A.1 Evaluation team's "Terms of reference"

Project Symbol: GCP/INT/916/JPN

Terms of Reference for the Evaluation of the Roles of Agriculture Project Phase II
(November 2006 – January 2007)

1. Background

The Roles of Agriculture (ROA) Project is funded by the Ministry of Agriculture, Forestry and Fisheries of the Government of Japan and is managed by the Agricultural and Development Economics Division of the FAO's Economic and Social Department.

The ROA Project is made up of two phases. The first phase of the project (ROA Phase I) undertaken from August 2000 to December 2003 was characterized by a conceptual and empirical analysis. Its objective was to identify, describe and to the extent possible quantify such indirect and non-market roles of agriculture as (i) environmental externalities, (ii) poverty alleviation, (iii) food security, (iv) buffer in times of economic shock, (v) social viability and (vi) cultural formation. Specifically, an analytical framework was established and case studies were implemented based on this framework in 11 developing countries in Asia, Africa and Latin America to examine these six different roles of agriculture in development process. The ROA Phase I delivered an array of reports and publications including individual country cases study report, cross-country synthesis reports by 6 modules and a summary report.

The second phase of the project (ROA Phase II) has been undertaken since January 2004. Although, the ROA Phase II was originally scheduled to be completed by December 2006, the finishing date was subsequently extended to March 2007. The budget for the ROA Phase II is USD 3,382,884 and this remains unchanged after the extension of the project. The ROA phase II adopts, contrary to its phase I, a normative analytical approach and focuses on (i) environmental service role and (ii) poverty alleviation and food security role. Its objective is to deliver policy guidance for decision-makers to take best advantage of these two roles of agriculture in development strategies. Major outputs from the ROA Phase II include country-level policy analysis reports, cross-country synthesis and policy implication reports and a summary report. Overall synthesis materials covering both ROA Phase I and II are also envisaged.

Major *activities* completed and planned include:

(a) Country-level policy analysis studies
- Policy analysis studies on environmental service incentive (ESI) are implemented in Bhutan, Kenya, Mexico, Morocco, Panama, the Philippines and Uganda.
- Policy analysis studies on poverty alleviation and food security (PAFS) are implemented in Indonesia, Egypt, Morocco and Paraguay.

(b) Workshops
- *Workshop on Environmental Services for Poverty Reduction and Food Security* was held at FAO-HQ in May 2005.
- *Workshop on Linking Agricultural Policies with Poverty Reduction and Food Security* was held at FAO-HQ in June 2005.
- *Learning Workshop on Environmental Service Incentives and Poverty Reduction* was held in August 2006 at the margin of the International Association of Agricultural Economists Brisbane Conference.
- *ROA Final Workshop: Policy Implications of the Roles of Agriculture in Developing Countries* is planned at FAO-HQ on 6-7 December 2006.

(c) ROA Website (http://www.fao.org/es/ESA/Roa/) has been updated regularly to disseminate reports and publications from the ROA projects to a wider audience.

Major *outputs* completed and planned include:

(a) Briefing materials
- *ROA Project Brief*: providing a wider audience with background, analytical approaches, activities and findings from the entire ROA project coveting both phases.
- *ROA Monthly Newsletter*: informing the evolution of the ROA Phase II activities in general and emerging findings from country-level policy analysis studies in particular.
- *ROA Policy Brief*: Taking up a specific conceptual or methodological issue pertaining to the ROA Phase II and explaining it in a non-technical manner.

(b) Reports for and from country-level policy analysis studies
- Analytical framework papers for country-level policy analysis studies of ESI and PAFS.
- Reports from individual country-level policy analysis studies of ESI and PAFS.
- Cross-country synthesis reports on ESI and PAFS (by September 2006).
- Policy implication reports on ESI and PAFS (by October 2006).

(c) Summary publications
- *ROA Phase II Summary Report*: a technical synthesis report based on cross-country synthesis reports and policy implication reports on ESI and PAFS (by December 2006).
- *ROA Story* (working title): a journalistic style book for disseminating diverse messages generated form the ROA studies to general audiences (by 2007).

2. Purpose of the Evaluation

The evaluation is intended, as the project draws to a close, (i) to provide recommendations to the FAO and the donor on the further steps necessary to consolidate progress and ensure achievement of objectives, and (ii) to provide accountability to the FAO and the donor on the outcomes of the project.

3. Scope of the Evaluation

The evaluation will assess all aspects of the project, including:

(a) Relevance of the project to development priorities and needs in developing countries.

(b) Comprehensiveness and consistency of the project design, including (i) the clarity of objectives; (ii) consistency between activities, outputs and objectives; and (iii) the specification of project process and methods in light of the following evolution of the project:
- original ROA Phase II project document;
- subsequent modifications of the scope of the project; and
- work plans developed to guide ESI and PAFS research components.

(c) Efficiency and adequacy of project implementation including: (i) availability of funds as compared with budget; (ii) the quality and timeliness of activities; (iii) managerial and work efficiency; (iv) managing implementation difficulties; (v) adequacy of monitoring and reporting; and (vi) the extent of national support and commitment and the quality and quantity of administrative and technical support by the FAO;

(d) The processes of the project including:
- integration into FAO's work;
- consultation in designing approaches, methods and coverage of work at the global and country levels; and
- development and communication of the project's findings;

(e) Project results, including a full and systematic assessment of outputs produced to date (quantity and quality as compared with work plans and progress towards achieving the immediate objectives). The work to be evaluated includes:
- analytical framework papers for country-level policy analysis studies of ESI and PAFS;
- reports from individual country-level policy analysis studies of ESI and PAFS;
- cross-country synthesis reports on ESI and PAFS;
- policy implication reports on ESI and PAFS;
- briefing materials; and
- workshop.

(f) The effects and impact of the project, including short and long term prospects for the use of project results by policy makers, particularly in the countries covered by policy analysis studies. The evaluation should examine in particular the prospects for:
- the continuation of follow-up studies within the FAO;
- partner institutions in charge of the country-level policy analysis studies to continue similar studies and further elaborate on the findings of the project's first phase;
- a contribution reinforcing the FAO's normative capacity to address issues related to environmental services, poverty alleviation and food security; and
- other institutions making use of the work and following up on it.

(g) The cost-effectiveness of the project: Based on its knowledge of the FAO and other major applied research studies, the evaluation should draw specific conclusions on the cost-efficiency and effectiveness of the work.

Based on the above analysis the mission will draw specific conclusions and make proposals for any necessary further action by the FAO and/or donor to ensure sustainable development, including any need for additional assistance and activities of the project prior to its completion. The mission will draw attention to any lessons of general interest.

4. Composition of the Evaluation Team

The evaluation team will consist of:
- A senior economist (team leader) with extensive experience of research and evaluation in non-market roles of agriculture in developing countries;
- An economist from Japan (donor) with knowledge of non-market roles of agriculture in general and environmental aspects in particular; and
- An economist with extensive experience of research in non-market roles of agriculture in the context of policy development.

Mission members should be independent and thus have no previous direct involvement with the project either with regard to its formulation, implementation or backstopping. They should preferably have experience of evaluation.

5. Timetable and Itinerary of the Evaluation

The evaluation will be undertaken from November 2006 to January 2007, with approximately 30 days of work.

- Drafting/finalization of evaluation instruments/methodologies in consultation with ROA Team and PBEE (Evaluation Service)
- Meetings with ESA management, ESA staff and ROA Central Team
- Visits to countries where policy case studies are taking place (Morocco and Indonesia)
- Attendance at ROA Final Workshop: 06-07/12/2006
- Meetings with experts conducting country-level policy case studies, project advisors and donor representatives: 08/12/2006
- Writing a draft evaluation report
- Circulate the draft evaluation report for review and comments
- Receipt of the comments on the draft report
- Submission of a final evaluation report
- Holding a peer-review panel session on the evaluation report and submission of a panel report

6. Consultations

The evaluation team should feel free to discuss with all those it deems appropriate, including liaising with the representatives of the donor and the FAO and the concerned national agencies, as well as with national and international project staff. Although the evaluation team should feel free to discuss with the authorities concerned anything relevant to its assignment, it is not authorised to make any commitments on behalf of the donor, or the FAO.

7. Reporting

The evaluation team is fully responsible for its independent report which may not necessarily reflect the views of the participating countries, the donor or the FAO.

The evaluation mission report will cover all the elements indicated under the terms of reference and while the exact format remains the responsibility of the evaluation team, it should in general conform to the order of headings in the terms of reference. The report will include an executive summary of an absolute maximum of three pages and annexes as deemed appropriate by the evaluation team. The evaluation report will be prepared in English in MS Word.

The evaluation team will also complete the FAO Project Evaluation Questionnaire.

The evaluation team leader bears responsibility for finalisation of the report, which will be submitted to the FAO by 31 January 2007. The FAO will submit the report to the donor together with its comments.

A.2 Project publications

The list of publications (actual and planned) as submitted to the evaluation team prior to the final workshop in Rome December 6-7, 2007. Although a more updated list may exist, this list provides an indication of the extent of the publication activities on the project.

Overall Project

Project proposal

Stringer, R. 2004. *Socio-economic analysis and policy implications of the roles of agriculture in developing countries: Phase II ROA project proposal*. Rome.

Synthesis reports

Sakuyama, T., Bresciani F., Croppenstedt, A. and Viatte, G. 2006. *The Roles of Agriculture in Developing Countries: The Policy Implications*, Research Programme Summary Report 2007, Rome (First draft to be ready by 20 November 2006).

Dissemination materials

Sakuyama, T. 2006. 'The roles of agriculture in economic and social development: Project approach and emerging lessons to date', *ROA Project Brief*, No. 1, June 2006, Rome.

Stringer, R. 2005. 'Lessons emerging from the Roles of Agriculture Project', *ROA Newsletter*, No. 2, October 2005, Rome.

Stringer, R. and Sakuyama, T. 2005. 'Can agriculture enhance environmental outcomes while contributing to economic and social development?', *ROA Newsletter*, No. 1, September 2005, Rome.

Environmental Service Incentive Component

Synthesis reports

Sakuyama, T. 2006a. *Environmental service incentives component: Analytical framework for policy case studies*, Roles of Agriculture Project, Rome (Final draft to be ready by 10 November 2006).

Sakuyama, T. 2006b. *Environmental service incentives component: Synthesis of policy case studies*, Roles of Agriculture Project, Rome (Third draft to be ready by 16 November 2006).

Sakuyama, T. 2006c. *Environmental service incentives component: Policy implications and guidance*, Roles of Agriculture Project, Rome (Third draft to be ready by 16 November 2006).

Books

Zilberman, D., Sakuyama, T. and Stringer, R. (forthcoming). *Agriculture and Environmental Services: Policies, Projects and Incentives for Poverty Reduction in Developing Countries*. FAO and Springer Press (in preparation).

Journal articles

Sakuyama, T. 2006. 'Direct payments for environmental services from mountain agriculture in Japan: evaluating its effectiveness and drawing lessons for developing countries', *electronic Journal of Agricultural and Development Economics*, Vol.3, No.1, pp.27-57.

Zilberman, D. and Bulte, E. H. (eds.) (forthcoming). 'Special issue on paying for ecosystem services and poverty alleviation', *Environment and Development Economics*.

Working papers

Zilberman, D, Lipper, L. and McCarthy, N. 2006. 'When are payments for environmental services beneficial to the poor?', *ESA Working Paper*, No. 06-04, FAO, Rome.

Project documents

Alix-Garcia, J., de Janvry, A., Sadoulet, E. and Torres, J. M. 2005. 'An assessment of Mexico's Payment for Environmental Services Program', *Policy case study report for the Roles of Agriculture Project*, Rome.

Allali, K. 2006. 'Agricultural landscape externalities, agro-tourism and rural poverty reduction in Morocco', *Policy case study report for the Roles of Agriculture Project*, Rome.
Antle, J. and Nalukenge, I. 2006. 'Establishing the feasibility of payments for environmental services in wetland conservation in Pallisa District', *Policy case study report for the Roles of Agriculture Project*, Rome (Draft).
Bulte, E. H., Boone, R. B., Stringer, R. and Thornton, P. K. 2006. 'Wildlife conservation in Amboseli, Kenya: paying for non-use value', *Policy case study report for the Roles of Agriculture Project*, Rome.
Fuwa, N. and Sajise, A. J. 2006. 'Toward environmental services incentive policies for the rice sector: a survey and a Philippine case study', *Policy case study report for the Roles of Agriculture Project*, Rome.
Sarmiento, M. (forthcoming). Panama policy case study report (interim report to be ready by 30 November).
Ura, K. (forthcoming). Bhutan policy case study report (interim report to be ready by 30 November).
Zilberman, D. 2006. *Marketing environmental services*, Roles of Agriculture Project, Rome (Draft).
Zilberman, D, Lipper, L. and McCarthy, N. 2006. *Putting payments for environmental services in the context of economic development*, Roles of Agriculture Project, Rome.

Dissemination materials

Antle, J. Nalukenge, I. and Stoorvogel, J. 2006. 'Protecting water quality in Uganda's Pallisa District', *ROA Newsletter*, No. 11, July 2006, Rome.
Bulte, E. and Stringer, R. 2006. 'Agroecosystem Benefits in Kenya's Amboseli Region', *ROA Newsletter*, No. 7, March 2006, Rome.
Sakuyama, T. 2005. 'Will the incentives for agri-environmental services help the poor?', *ROA Newsletter*, No. 3, November 2005, Rome.
Sakuyama, T. 2006a. 'Roles of environmental service valuation in incentive design', *ROA Newsletter*, No. 5, January 2006, Rome.
Sakuyama, T. 2006b. 'Economic valuation on environmental services from agriculture: Stocktaking for incentive design', *ROA Policy Brief*, No. 1, January 2006, Rome.
Sakuyama, T. 2006c. 'Lessons from the payments for hydrological services in Mexico', *ROA Newsletter*, No. 9, May 2006, Rome.
Sakuyama, T. 2006d. 'Can agro-tourism help rewarding for agricultural landscape and contributing to poverty alleviation?: Lessons from Morocco', *ROA Newsletter*, No. 10, June 2006, Rome.
Sakuyama, T. 2006e. 'Genetic diversity conservation and poverty alleviation: A case in the Philippines', *ROA Newsletter*, No. 13, September 2006, Rome.

Poverty Alleviation and Food Security Component

Synthesis reports

Bresciani F. and Croppenstedt, A. 2006a. *Poverty Alleviation and Food Security Component: Analytical framework for policy case studies*, Roles of Agriculture Project, Rome (Final draft to be ready by 10 November 2006).
Bresciani F. and Croppenstedt, A. 2006b. *Poverty Alleviation and Food Security Component: Synthesis of policy case studies*, Roles of Agriculture Project, Rome (Third draft to be ready by 16 November 2006).
Bresciani F. and Croppenstedt, A. 2006c. *Poverty Alleviation and Food Security Component: Policy implications and guidance*, Roles of Agriculture Project, Rome (Third draft to be ready by 16 November 2006).

Books

Bresciani F. and Valdés, A. (eds.) (forthcoming). *Beyond Food Production: The Role of Agriculture in Poverty Reduction*, Cheltenham: Edward Elger (collection of papers from ROA Phase I poverty module).

Working papers

Croppenstedt, A. 2005. 'Measuring Technical Efficiency of Wheat Farmers in Egypt', *ESA Working Paper*, No. 05-06, FAO, Rome. (also published in the Egyptian Journal of Agricultural Economics)
Croppenstedt, A. 2006. 'Household Income Structure and Determinants in Rural Egypt', *ESA Working Paper*, No. 06-02, FAO, Rome. (forthcoming in the Egyptian Journal of Agricultural Economics)
Siam, G. M. 2006. 'An assessment of the impact of increasing wheat self-sufficiency and promoting cash-transfer subsidies for consumers in Egypt: A multi-market model', *ESA Working Paper*, No. 06-03, FAO, Rome.

Project documents

Bresciani, F. 2006a. 'Determinants of child nutritional status in Paraguay: Assessing the role of income and access to calories', *ROA Discussion Paper*, FAO, Rome.

Bresciani, F. 2006b. 'Dealing with food security in the design of social protection programs for the poor in Paraguay', *ROA Discussion Paper*, FAO, Rome (to be ready by 30 November).

Bresciani, F., Corvalán, J. and Biederman, G. 2006. 'Supply elasticities and structure of Paraguay's crop sector', *ROA Discussion Paper*, FAO, Rome.

Bresciani, F. and Di Giuseppe, S. 2005. 'Estimating nutrient income and food price elasticities when quality matters: An Application to Paraguay household survey data', *ROA Discussion Paper*, FAO, Rome.

Bresciani, F., Molinas, J. R. and Cabello, C. 2006. 'ROA Paraguay research report', *ROA Discussion Paper*, FAO, Rome (to be ready by 21 November).

Croppenstedt, A. and Di Giuseppe, S. 2006. 'Rice policy and poverty and food security in Indonesia', *ROA Discussion Paper*, FAO, Rome (to be ready by 28 November).

Doukkali, R. and Moussaoui, M. 2006. Poverty alleviation and food security policy case study in Morocco (to be ready by 14 November).

Molinas, J. R. 2005. 'The role of agriculture in the reduction of poverty in Paraguay: Current challenges and future prospects', *ROA Discussion Paper*, FAO, Rome.

Rusastra, I.W., Sumaryanto and P. Simatupang, 2005, 'Agricultural Development Policy Strategies for Indonesia: Enhancing the contribution of agriculture to poverty reduction and food security', *ROA Discussion Paper*, FAO, Rome.

Siam, G. M. 2006. 'The policy environment today and possible policy options/reforms in the context of the agricultural strategy to 2017', *ROA Discussion Paper*, FAO, Rome.

Siam, G. M. and Croppenstedt, A. 2006. 'Wheat policy and poverty and food security in Egypt', *ROA Discussion Paper*, FAO, Rome (to be ready by 17 November).

Dissemination materials

Bresciani F. 2005. 'Linking agricultural growth to poverty alleviation and food security', *ROA Newsletter*, No. 4, December 2005, Rome.

Bresciani F. 2006. 'Reverting the anti-poverty bias in Paraguay's agricultural growth', *ROA Newsletter*, No. 8, April 2006, Rome.

Croppenstedt, A. 2006a. 'Assessing the impact of increasing wheat self-sufficiency and promoting cash-transfer subsidies in Egypt', *ROA Newsletter*, No. 6, February 2006, Rome.

Croppenstedt, A. 2006b. 'Food security and wheat policy in Egypt', *ROA Policy Brief*, No. 2, October 2006, Rome.

Croppenstedt, A., Bellu, R. and Bresciani F. 2006. 'Multi-market models in policy analysis: How do they work?', *ROA Newsletter*, No. 12, August 2006, Rome.

A.3 Persons contacted/Interviewed

Name	Affiriation
FAO(Rome)	
Valdés, Alberto	FAO, Special Adviser
Viatte, Gérard	FAO, Special Adviser
Pingali, Prabhu	FAO Headquarters, ESA, Director
Sakuyama, Takumi	FAO Headquarters, ESAC, ROA Project Leader, Economist
Bresciani, Fablizio	FAO Headquarters, ESAC, Economist
Croppenstedt, André	FAO Headquarters, ESAC, Economist
Zurek, Monika	FAO Headquarters, ESAC, Economist
Pougheon, Muriel	FAO Headquarters, ESAC, Administrative Clerk
Stamoulis, Kostas	FAO Headquarters, ESAE, Service Chief
Lipper, Lislie	FAO Headquarters, ESAE, Economist
Legg, Wilfrid	Organisation for Economic Cooperation and Development(OECD), Directorate for Food, Agriculture and Fisheries, Head of Policies and Environment Division
Inoue, Ryuko	Ministry of Agriculture, Forestry and Fisheries. Japan, International Cooperation Division, Director
Yokoi, Seiichi	Embasssy of Japan in Italy, Counselor
Kuraya, Yoshihiro	Embasssy of Japan in Italy, Alternate Permanent Representative to FAO and WFP
Watanabe, Yasuo	Policy Research Instituite, Ministry of Agriculture, Forestry and Fisheries, Deputy Director General
Garay Argüello, Ricardo	Ministerio de Agricultura Y Ganaderia, Paraguay, Ministro
Jaouad, Mohamed	Royaume du Maroc, Ministèrel'Agriculture du Développemnet Rural et des Pêches Maritimes, Conseiller

Name	Affiriation
Antle, John	Montana State University, Professor
Bulte, Erwin	University of Tilburg, Professor
Fuwa, Nobuhiko	Chiba University, Associate Professor
Molinas Vega, Jose R.	World Bank, Senior Economist
Nalukenge, Imelda K.	Makerere University, Lecturer
Sarmiento Esquivel, Miguel A.	Instituto de Investigación Agropecaria de Panamá(IDIAP), Researcher
Siam, Gamal	Cairo University, Professor
Stringer, Randy	The University of Adelaide, Professor
Torres, Juan Manuel	Centro de Investigación Y Docencia Económicas, A. C., Professor
Tsubota, Kunio	Kyushu University, Professor

Morocco

Halila, Habib	Représentation de la FAO au Morocco, Représentant
Bouchanine, Abdelwahab	Représentation de la FAO au Morocco, Assistant Représentant
Marghi, Moha	Ministère l'Agriculture du Développemnet Rural et des Pêches Maritimes, Secrêtaire Gênéral
Oulhaj, Ahmed	Ministère l'Agriculture du Developpemnet Rural et des Peches Maritimes, Conseiller Cabinet
Ait Kadi, Mohamed	Ministère l'Agriculture du Développemnet Rural et des Pêches Maritimes, Président, Conseil Général du Développement Agricole
Rahali, Abdelkrim	Ministère l'Agriculture du Développemnet Rural et des Pêches Maritimes, Ingénieur Général, Counseiller, Conseil Général du Développement Agricole
Serghini Idrissi, Hassan	Ministère l'Agriculture du Développemnet Rural et des Eaux et Forêts, Directeur, Direction de la Progammation et des Affaires Econoniques
Mouddene, Mohammed	Ministère l'Agriculture du Développemnet Rural et des Pêches Maritimes, Chef de la Division de l'Enseignement Supérieur et de la Recherche Agricoles
Milourhmane, Mohamed	Ministère l'Agriculture du Développemnet Rural et des Pêches Maritimes, Chef Directeur, Direction des Amenagements Fonciers

Name	Affiriation
El Otamani, Abdelkader	Ministère l'Agriculture du Développemnet Rural et des Pêches Maritimes, Directeur Provincial de l'Agritulture de Marrakech
Ghanam, Mohamed	Service de Coordination et de Suivi de la Convention de Lutte Contre la Désertification, Chef
Hammoudi, Abdelaziz	Service of Forest Product Varolisation
Boulejiouch, Jâfar	Ministère de l'Amenagement du Territoroire, de l'Eau et de l'Environnement, Chef de la Divison des Projests Pilotes et des Etudes d'impact sur l'Environnement
Houmymid, Mohamed	National du Programme de Sauvegarde et de Valorisation des Oasis du Sud (PNUD/Agence du Sud, Coordonateur
Narjisse, Hamid	Institut National de la Recherche Agronomique(INRA), Directeur
El Madani, Zouttane	Institut National de la Recherche Agronomique(INRA), Chef de la Division de Gestion des Ressources Humaines et Financières
Boulanouar, Bouchaib	Institut National de la Recherche Agronomique(INRA), Head of the Scientific Division
Kradi, Chafik	Institut National de la Recherche Agronomique(INRA)
Alalli, Khalil	Ecole Nationale d'Agriculture de Meknès(ENA), Professeur
Doukkali, Mohamed Rachid	Institut Agrinomique et Vétérinaire Hassan , Professeur
Moussaoui, Mohamed	Consultant
Indonesia	
Sormin, Benni	FAO Indonesia, Assistnat Representative
Syam, Verra	FAO Indonesia, Progrmme Secretary
Murninigtyas, Endah	National Development Planning Agency(BAPPENAS), Food and Agriculture, Director
Rusono, Nono	National Development Planning Agency(BAPPENAS), Food and Agriculture, Chief Divison for Institional Development
Mappaona	Indonesian Ministry of Agriculture, Bureau of Planning, Director
Budi, Gardjita	Indonesian Ministry of Agriculture, Bureau of Planning, Head of Evaluation Division

Name	Affiriation
Rumahorbo, Maringan	Indonesian Ministry of Agriculture, Bureau of Planning, Head of Data and Analysis Subdivision
Sitanggang, Mian Sahala	Indonesian Ministry of Marine Affairs & Fisheries, Planning and Foreign Cooperation Bureau, Deputy Director
Hardino	Indonesian Ministry of Marine Affairs & Fisheries, Planning and Foreign Cooperation Bureau, Head of Subdivision of International Institutions Cooperation
Sudaryanto, Tahlim	Indonesian Center for Agriculture Socio Ecnomic and Plocy Studies (ICASEPS), Director
Sayaka, Bambang	Indonesian Center for Agriculture Socio Ecnomic and Plocy Studies (ICASEPS), Researcher
Sumaryanto	Indonesian Center for Agriculture Socio Ecnomic and Plocy Studies (ICASEPS), Researcher
Rusastra, I Wayan	Economic and Social Commission for Asia and the Pasific(UN-ESCAP), Programme Leader
Japan	
Kako, Toshiyuki	Kobe University, Professor

A.4 Itinerary of evaluation team

Evaluation Team Members
Mr Eirik Romstad (Norwegian University of Life Sciences, team leader)
Mr Yasuo Ohe (Chiba University, donor representative)
Ms Agnes Rola (University of the Philippines)

Sunday 26 November 2006 in Rome

19:40-20.45	Arrival of Mr Romstad and Mr Ohe (Hotel Lancelot)

Monday 27 November 2006 at FAO Headquarters(Rome)

8.30	Arrival of Mr Romstad and Mr Ohe and starting interview
9.00-10.30	Mr Takumi Sakuyama (ROA Phase II team leader and environmental service incentive model team leader)
10.30-11.00	Break
11.00-12.00	Mr Fabrizio Bresciani and Mr André Croppenstedt (ROA poverty alleviation and food security module team leaders)
12.00-14.00	Lunch break
14.00-14.30	Mr Yoshihiro Kuraya (First Secretary, Japanese Embassy in Rome)
14.30-15.30	Ms Leslie Lipper (Senior Economist, ESAE), and Ms Monika Zurek (Environmental Economist, ESAC)
15.30-18.00	Internal mission meeting

Tuesday 28 November 2006 at Hotel Lancelot (Rome)

9.00-11.00	Internal mission meeting
11.00	Departure of Mr Romstad to OECD
13.00-17.00	Evaluation work

Wednesday 29 November 2006 trip from Rome to Rabat(Morocco)

5.00	Departure of Mr Ohe to Morocco
11.00	Meeting Ms Rola and Mr Ohe at Paris Airport
13.25	Arrival of Ms Rola and Mr Ohe to Rabat(Helnan Chellah Hotel)
17.00-19.00	Internal mission meeting

Thursday 30 November 2006 in Rabat

8.00	Departure of Ms Rola and Mr Ohe to INRA and starting interview
8.30-9.00	Mr Hamid Narjisse (Director of INRA)
9.00-9.30	Mr Mohammed Rachid Doukkali(Institut Agrinomique et Vétérinaire Hassan, Professeur) and Mr Khalil Allali(Ecole Nationale d'Agriculture de Meknès, Professeur)
9.30-10.30	Mr Mohamed Mouddene(Ministère l'Agriculture du Développemnet Rural et des Pêches Maritimes, Chef de la Division de l'Enseignement Supérieur et de la Recherche Agricoles)
10.30-11.30	Mr Ahmed Oulhaj(Ministère l'Agriculture du Developpemnet Rural et des Peches Maritimes, Conseiller Cabinet)
12.00-13.00	Mr Mohamed Ghanam (Service de Coordination et de Suivi de la Convention de Lutte Contre la Désertification, Chef), Mr Abdelaziz Hammoudi(Service of Forest Product Varolisation)
13.00-14.30	Lunch break
14.30-15.30	Mr Mohamed Ait Kadi(Ministère l'Agriculture du Développemnet Rural et des Pêches Maritimes, Président, Conseil Général du Développement Agricole), Mr Abdelkrim Rahali (Ministère l'Agriculture du Développemnet Rural et des Pêches Maritimes, Ingénieur Général, Counseiller, Conseil Général du Développement Agricole)
16.00-17.00	Mr Hassan Serghini Idrissi(Ministère l'Agriculture du Développemnet Rural et des Eaux et Forêts, Directeur, Direction de la Progammation et des Affaires Econoniques)
17.30	Return to Hotel

Friday 1 December 2006 in Rabat and trip to Marrakech

8.30- 9.00 Mr Habib Halila (Représentation de la FAO au Morocco, Représentant)
9.15-10.30 Mr Moha Marghi(Ministère l'Agriculture du Développemnet Rural et des Pêches Maritimes, Secrêtaire Gênéral)
10.30-11.30 Mr Mohamed Houmymid (National du Programme de Sauvegarde et de Valorisation des Oasis du Sud(PNUD/Agence du Sud, Coordonateur,)
11.30-12.30 Mr Boulejiouch, Jâfar (Ministère de l'Amenagement du Territoroire, de l'Eau et de l'Environnement, Chef de la Divison des Projests Pilotes et des Etudes d'impact sur l'Environnement
12.30-13.30 Mr Milourhmane, Mohamed (Ministère l'Agriculture du Développemnet Rural et des Pêches Maritimes, Chef Directeur, Direction des Amenagements Fonciers)
13:30-14:30 Lunch Break
15.00 Departure to Marrakech
20.30 Arrival to Marrakech (Hotel Meriem)

Saturday 2 December 2006 in Marrakech and Rabat

8.30-10.00 Mr Abdelkader El Otamani(Ministère l'Agriculture du Développemnet Rural et des Pêches Maritimes, Directeur Provincial de l'Agritulture de Marrakech)
10.00 Departure to ROA study area with Mr Allali
12.30 Arrival to ROA study area(Imlil)
15.30 Departure to Marrakech
13.25 Arrival of Mr Romstad to Rabat
17.30 Return Ms Rola and Mr Ohe to Hotel

Sunday 3 December 2006 trip from Marrakech to Rabat

8:00 Departure of Ms Rola and Mr Ohe to Rabat
16.00 Arrival of Ms Rola and Mr Ohe to Rabat
16.30-17.30 nternal mission meeting

Monday 4 December 2006 in Rabat

8.30 Departure of team to FAO Morocco office
9.00-9.45 Mr Habib Halila
10.00-11.30 Round table discussion with persons concerned with ROA project (Mr Marghi, Mr Mohattane, Mr Rahali, Mr Serghini, Mr Milourhmane, Mr Badraoui, Mr Moudene, Mr Kradi, Mr Doukalli, Moussaoui, Mr Allali, Mr Boulanouar, Mr Halila, Mr Bouchanine, evaluation team)
12.00-12.45 Mr Mohamed Rachid Doukkali(Institut Agrinomique et Vétérinaire Hassan, Professeur), Mr Mohamed Moussaoui(Consultant)
12:45-14.30 Lunch break
15.00-17.00 Evaluation work
17.00-18.00 Internal mission meeting

Tuesday 5 December 2006 trip from Rabat to Rome

9.00-12.00 Evaluation work
12.00 Departure to Rabat Airport
14.10 Departure to Rome
21.05 Arrival to Rome (Hotel Lancelot)

Wednesday 6 December 2006 at FAO Headquarters (Rome)

8.30-8.45 Mr Prabhu Pingali(ESA Director)
9.00-18.00 ROA project Final Workshop
18.00-19.00 Final Workshop Reception

Thursday 7 December 2006 at FAO Headquarters (Rome)

9.30-16.30 ROA project Final Workshop
16.30-17.30 Group discussion with senior policy advisors Mr Ricardo Garay (Minister of Agriculture and Livestock, Paraguay), Mr Tahlim Sudaryanto (Director, ICASEPS, Indonesia), and Mr Mohamed Jaouad (Senior Economic advisor to the Minister of Agriculture, Morocco)

17.30-18.30 Kenya (ESI): Mr Erwin Bulte (University of Tilburg, Professor), Uganda (ESI): Ms Imelda Nalukenge (Makerere University, Lecturer) and Mr John Antle (Montana State University, Professor)

Friday 8 December 2006 at FAO Headquarters (Rome)

8.30-09.30 Mr Gérard Viatte (Special Advisor to ROA Project), Mr Alberto Valdés (Special Advisor to ROA Project)
9.30-10.00 Ms Ryuko Inoue (Director, Japanese Ministry of Agriculture, Forestry and Fisheries)
10.00-10.30 Break
10.30-11.30 Mr Kunio Tsubota (Kyushu University, Professor and former ESAC Service Chief), Mr Randy Stringer (Adelaide University, Professor and former ESAC Service Chief)
11.30-12.30 Bhutan (ESI): Mr Randy Stringer (in place of Mr Karma Ura), Philippines (ESI): Mr Nobuhiko Fuwa (Chiba University, Associate Professor)
12.30-13.30 Lunch break
13.30-14.45 Indonesia (PAFS): Mr Bambang Sayaka and Mr Sumaryanto (Indonesian Center for Agricultural Socio-Economic and Policy Studies, ICASEPS, Researcher), Egypt (PAFS): Mr Gamal Siam (Cairo University, Professor), Paraguay (PAFS): Mr José Molinas (World Bank, Senior Researcher)
14.00-15.30 Break
15.30-16.45 Mexico (ESI): Mr Juan Manuel Torres (Centro de Investigación y Documentación Educativa, Professor), Panama (ESI): Mr Miguel Sarmiento (IDIAP, Researcher)
16.45-17.30 Mr Prabhu Pingali (FAO/ESA)

Saturday 9 December 2006 trip from Rome to Jakarta (Indonesia)

7.00-12.00 Departure of evaluation team to Jakarta

Sunday 10 December 2006 trip from Rome to Jakarta

17.20-19.20 Arrival of evaluation team to Jakarta (Sari Pan Pacific Hotel)

Monday 11 December 2006 in Jakarta

8.00-9.30 Mr Benni Sormin (FAO Indonesia, Assistant Representative)
10.00-12.00 Evaluation work
12.00-13.30 Lunch break
13.30 Departure of team to Ministry of Agriculture
14.30-16.00 Mr Mappaona (Indonesian Ministry of Agriculture, Bureau of Planning, Director) , Mr Gardjita Budi(Indonesian Ministry of Agriculture, Bureau of Planning, Head of Evaluation Division) and Mr Maringan Rumahorbo (Indonesian Ministry of Agriculture, Bureau of Planning, Head of Data and Analysis Subdivision)
17.00 Return to Hotel

Tuesday 12 December 2006 □□ in Jakarta

8.30-11.30 Evaluation work
11.30-12.30 Lunch break
13:00-13:30 Rescheduling meeting with officials of Ministry of Marine Affairs
14.00-16.00 Ms Endah Murninigtyas(National Development Planning Agency(BAPPENAS, Food and Agriculture, Director) and Mr. Nono Rusono (BAPPENAS, Food and Agriculture, Chief Division for Institutional Development)□□
16.15-17.15 Mr Mian Sahala Sitanggang(Indonesian Ministry of Marine Affairs & Fisheries, Planning and Foreign Cooperation Bureau, Deputy Director), Mr Hardino(Indonesian Ministry of Marine Affairs & Fisheries, Planning and Foreign Cooperation Bureau, Head of Subdivision of International Institutions Cooperation)
17.30 Return to Hotel

Wednesday 13 December 2006 in Bogor and Jakarta

8.00 Departure of team to Bogor, Ms Rola to Manila
10.00-12.00 Mr Sumaryanto, Mr Bambang Sayaka(Indonesian Center for Agricultural Socio-Economic and Policy Studies, ICASEPS, Researcher) and Mr Tahlim Sudaryanto (ICASEPS, Director)
13.30 Return to Jakarta

13.30-15.00 Lunch break
15.00-18.30 Evaluation work
19.00 Departure of Mr Ohe to Tokyo

Thursday 14 December 2006 in Jakarta
9.00-10.00 Briefing to Mr Sormin by Mr Romstad
10.00-16.00 Evaluation work
16.30 Departure of Mr Romstad to Oslo

End of mission program