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ENVIRONMENTAL ASSESSMENT IN AFRICA

Final Project Report

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EXECUTIVE SUMMARY AND SUMMARY OF RECOMMENDATIONS

This report presents the findings of the Environmental Assessment in Africa project, which IRG has carried out for the Africa Bureau Environmental Officer. This project was in response to a range of new issues confronting the Bureau as a result of the increasing emphasis being placed on environmental protection in the Agency, and indeed worldwide. We have addressed five issues in this project.

First, the work has looked at the "traditional" situation; how environmental reviews are carried out under 22 CFA Ch. II Part 216, better known as Reg. 16. The report identifies the main problems in the current application of those regulations, which relate primarily to environmental considerations being given short shrift during project or program design. It suggests an analytical process through which this could be addressed, and recommends that each design team include a full member responsible only for environmental evaluation. It also discusses the common misperception in Missions of Reg. 16 as a "balancing test", and that a project that has some beneficial impact on the environment, or that has more beneficial than harmful aspects, will receive a negative determination.

The report then looks at the new problems posed by the increase in importance of non-project assistance and local currency funding. The Africa Bureau Guidance on NPA under the DFA essentially calls for Reg. 16 procedures to be followed in the design of NPA; this report therefore recommends that those design teams follow the same procedures as were recommended for projects. The report also considers the requirement that Missions protect against long-term environmental harm from policy reform under the DFA, and recommends a review of current knowledge about the impacts of macro policy reform on the environment, to serve as a base for developing guidelines for Mission action in this area. Finally, it considers the problems of encouraging African governments to take responsibility for their own environmental protection, and assesses the viability of conditions precedent as a way to do this.

The third chapter looks at monitoring. It stresses the importance of understanding what questions must be answered, why, and how the results will be used as the framework for thinking about monitoring. In this context it defines four types of monitoring - tracking, impact monitoring, research monitoring, and problem identification - and considers how each is important in the context of Africa Bureau projects. It then considers the management questions which must be addressed by the Bureau and the Missions in order to ensure effective environmental monitoring in the future.

The fourth chapter looks specifically at pesticide monitoring. It recommends that monitoring be required for all A.I.D. projects or NPA which involve pesticide use, following the procedures set out in Chapter III. It also considers the development of international databases on the sale and use of pesticides, and recommends a short project to scope out what this could involve.

The fifth chapter considers the National Environmental Action Plans launched by the World Bank in many African countries. After an assessment of what is unique and interesting about these plans, it considers how A.I.D. should be involved with them. The strategies suggested include supporting international efforts to coordinate both donor and African country work on NEAPs.

They also include the roles which Missions can play in both supporting and following the NEAPs in their host countries.

The last chapter discusses a set of institutions which could play a useful role in implementing the environmental assessment and monitoring tasks recommended in the previous chapters. There is no ideal institutional mechanism which will be the best solution in every country. Rather, there are many possible solutions, each of which has both advantages and disadvantages. The discussion in Chapter VI is designed to give Mission personnel an understanding of the options, so they can assess what makes the most sense for their projects and NPA, in the context of their host countries and their funding and management constraints.

The chart below summarizes the recommendations of this report and the approximate cost of each.

Recommendations:	Cost:
I. Project Design	
A. Design teams for projects which either require an I.E.E., or are eligible for a categorical exclusion for TA, training, or research in areas requiring an environmental assessment, should include an environmental specialist as a full team member. This person will be responsible for a systematic assessment of opportunity costs and tradeoffs between environmental, economic, and other project objectives. This will be required for PID or PAIP teams; if the project changes substantially during the design process it will also be required for PP and PAAD teams. The I.E.E. will be prepared by this team member based on his or her analysis.	Up to \$25,00 per team, depending on staffing.
B. Mitigative measures included in the I.E.E. or identified during the environmental analysis of activities eligible for categorical exclusions must be included in the PP or PAAD and must be implemented in the project or NPA activity.	Depends on cost of those measures.
C. Courses to train Mission staff in the application of Reg. 16 and other environmental rules should be held at the REDSO offices.	\$15,000 to \$50,000 per course.

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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| D. Mission and regional environmental personnel may want to create environmental working groups through which they can educate other A.I.D. personnel. | No cost. |
| II. Non-Project Assistance | |
| A. NPA design teams should include environmental specialists responsible for analysis and preparation of I.E.E.'s, as recommended above for project assistance. | Up to \$25,00 per team, depending on staffing. |
| B. The Bureau should contract for a review of research and the development of an action plan or Mission guidance on how to mitigate long-run impacts of policy reform on the environment. | \$50,000 |
| III. Monitoring Environmental Impacts of Projects and NPA | |
| A. The Bureau should develop guidelines for when monitoring will be required on projects or non-project assistance. | Bureau and Mission staff time c. 4 weeks to develop the guidelines. Cost of monitoring will depend on point III.2. |
| B. The Bureau should develop a ceiling on the share of project funds which it may "normally" require be devoted to monitoring. | Bureau Mission staff time c. 4 weeks. |
| C. A monitoring plan should be prepared during the PP or PAAD phase of any projects or local currency funded activities which require monitoring. That plan must address all of the management questions discussed Chapter III, Section D-6. | Cost covered by environmental specialist on the design team (I.1 above). |
| IV. Pesticide Monitoring | |
| A. All A.I.D. projects or NPA involving pesticide use should be tracked for compliance with safe procedures and monitored for environmental impacts. | Cost will be determined by |

	the limit set in III.2 above.
B. A.I.D. support for pest management research should be designed in the context of African efforts to prioritize research in these areas.	No additional cost.
C. The Bureau should support initial investigation of the development of a data system to track pesticide sales, transport, and use.	\$50,000 to \$100,000, depending on the scope of the effort.
D. The Programmatic Environmental Assessment and subsequent Supplementary Environmental Assessments of pesticide use planned under PARTS should include explicit attention to the design and implementation of monitoring systems.	No costs beyond the cost of the assessments.
V. National Environmental Action Plans (NEAPs)	
A. Support the NEAP Multi-Donor Secretariat	Some share of the \$1,350.00 3-year budget.
B. Support the Club of Dublin	Some share of the \$2 million bilateral contribution
C. Africa Bureau should conduct NEAP seminars for Mission personnel.	\$50,000 to \$100,000
D. Pilot the NEAP project in an individual country.	Flexible.
E. Provide selected technical assistance to the NEAP in an individual country.	Flexible
F. Develop Mission NRM activities within the framework of the NEAP.	No additional cost
G. Identify policy reform issues for NPA within the framework of the NEAP.	No additional cost

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Chapter I.

PROJECT DESIGN

A. Introduction

This chapter considers how environmental impacts are addressed in the project design process, what the problems are, and how they could be addressed. Missions follow the rules outlined in Section 216 of 22 CFR Ch. II, commonly referred to as Reg. 16. The perception is, however, that only the minimum is done at the Mission level to abide by these rules, that concern with the environment is just another special interest with no long-term commitment involved. Furthermore, many Missions are understaffed, with little or no prospect for adding direct hire staff to handle environmental matters. They are now being asked to do a lot more on the environment with fewer and fewer resources.

B. The Design Process and Environmental Reviews

1. Project Design

A.I.D. Handbook 3 describes in some detail how programs and projects should be designed. For programs, the process begins with the Program Assistance Initial Proposal (PAIP), which identifies program assistance opportunities, and ends with the Program Assistance Approval Document (PAAD). Projects begin with the Project Identification Document (PID), which initially identifies and describes a proposed project, and ends with the Project Paper (PP) which provides an appraisal of the project including an implementation plan. Once the PAAD or PP is approved, negotiations begin with the host country, eventually leading to a program or project agreement - a contract - specifying conditions precedent or terms governing the disbursement of funds over the project period.

2. The Initial Environmental Examination (I.E.E.)

Reg. 16 sets out the requirements for addressing environmental issues in the project design process. Missions must prepare an Initial Environmental Examination (I.E.E.) which makes a threshold determination as to whether the proposed project will have a significant impact on the environment. A negative determination means the project will have no significant impact, and a positive determination means it will have a significant impact; a deferred determination is one in which the I.E.E. has been postponed until sub-project activities are identified. "Significant impacts" are defined by Reg. 16 as those impacts that are harmful; thus a project which benefits the environment will receive a negative determination. However, projects with both harmful and beneficial impacts should receive a positive determination; this is sometimes a source of confusion in Mission interpretations of Reg. 16 requirements.

Reg. 16 exempts a number of activities from the I.E.E. process. One set of exemptions applies to activities undertaken in response to emergency situations. A second set of exemptions, of more importance to us, applies to categories of activities considered very unlikely to have a significant impact on the environment. These activities, listed in Table 1.1, are eligible for so-called

"categorical exclusions".¹ Reg. 16 also lists specific activities which are expected to have significant impacts on the environment. For those, a more rigorous review is required and the I.E.E. is determined to be positive. Those classes of actions are shown in Table 1.2.

Reg. 16 indicates that the I.E.E. should be prepared in conjunction with the PID; section 216.3[a][1] states that "Except as indicated in this section, it should be prepared with the PID or PAIP." This section has been interpreted by A.I.D. to require, not just recommend, submission of the I.E.E. with the PID. Historically, however, this requirement has not always been met. In some cases a Mission may feel that an I.E.E. should be submitted after PID submission, e.g., where a full deferral was considered not justified, but not enough is known about the project to properly prepare an I.E.E. In such cases the Africa Bureau notifies the Mission that is in non-compliance with the provision, and will refuse to approve the PID until the I.E.E. is submitted. Since this section of Reg. 16 was designed simply to identify those projects that might be harmful to the environment, this "mitigation stage" should occur later on in the project design process.

I.E.E.'s can be prepared by any A.I.D. staff member or consultant, although they must be approved by a direct hire. The initial preparation of many of the more complex I.E.E.'s is done by the regional environmental staff at the REDSO offices in Abidjan and Nairobi. Others are prepared by Mission staff, with approval from the Mission Environmental Officers (MEOs) and Mission Director. Once approved in the field, all I.E.E.'s are forwarded to Washington, where they have to be approved the Bureau Environmental Officer and cleared by the General Counsel's office.

The work involved in preparation and review of I.E.E.'s varies greatly. Simple I.E.E.'s or requests for categorical exclusions require only a few hours of work, and very little specialized knowledge of the environment. However the I.E.E.'s for complex natural resource projects like those in Madagascar require the full-time participation of an environmental expert on the design team, and they can involve extensive negotiations between the Mission, the regional offices and Washington. The Washington office received about 70 I.E.E.'s in FY 1991; this represents a significant work load especially as the majority required some work, whether or not they were complex.

3. Environmental Assessments (EA) and Environmental Impact Statements (EIS)

When an I.E.E. threshold decision is positive, i.e., the project or program is judged to have negative environmental impacts, the next step in the process is to carry out an Environmental Assessment (EA) or an Environmental Impact Statement (EIS). In general, EISs are carried out

¹ In 216.2.(c)(2) the regulation states, with respect to categorical exclusions, that "The following classes of actions are not subject to the procedures set forth in 216.3"; 216.3 sets out the procedures for preparation of an IEE. Notwithstanding this, in the Africa Bureau the label "I.E.E." is used for the written statement that determines whether or not an activity is qualified for a categorical exclusion, so most of the people with whom we spoke considered that "I.E.E.'s" were required for categorically excluded activities. The difference is purely semantic and not substantive; however in this report we have followed the terminology used in Reg. 16 and not that which is in common use in the missions and the REDSO offices.

Table 1.1 Categorical Exclusions, 22 CFR Ch. II Part 216.2(c)(2)

1. A.I.D. does not have knowledge or control over details of specific activities that have an effect on the physical and natural environment
2. Research activities
3. Educational, technical assistance and training programs
4. Controlled experimentation
5. Analyses, studies, academic or research workshops and meetings
6. Document and information transfer
7. Contributions to international, regional, or national organizations not for the purpose of carrying out specific projects
8. Institution building grants to research and educational institutions in the US (Title XII, etc.)
9. Programs involving nutrition, health care or population and family planning services
10. Assistance provided under a commodity import program
11. Support for intermediate credit institutions when the objective is to assist in the capitalization of the institution
12. Programs of maternal or child feeding
13. Food for development programs
14. Matching, general support and institutional support grants provided to PVOs
15. Studies, projects or programs intended to develop the capability of recipient countries to engage in development planning
16. Activities which involve the application of design criteria or standard and approved by A.I.D.

Table 1.2 Classes of Activities With Environmental Impacts, 22 CFR Ch. II Part 216.2(d)(1)

1. Programs of river basin development
2. Irrigation and water management projects, including dams and impoundments
3. Agricultural land leveling
4. Drainage projects
5. Large scale agricultural mechanization
6. New lands development
7. Resettlement projects
8. Penetration road building or road improvement projects
9. Power plants
10. Industrial plants
11. Potable and water sewerage projects
12. Where the projects or programs involve the use of pesticides

for projects affecting the global environment or the United States, whereas EAs are carried out when the impacts are more limited in geographic scope. The EA can be a relatively modest analysis requiring a team of three people from six weeks to four months to complete, according to the REDSO/WCA environmental staff. The EIS process is much more time consuming and costly; it can take up to one year with cost beginning at \$500,000.

As a general rule, Missions shy away from even considering projects or programs for which an EA or an EIS may be required. Missions are reluctant to take the risk of having projects or programs dropped because of the environmental review, after they have invested large amounts in

design. This is why virtually all AFR projects apply for a negative determination or categorical exclusion. Missions do not have the personnel or funds to carry out EAs or EISs given current staffing and budget constraints. More often than not they are also pressured by funding obligation deadlines, and cannot afford the luxury of waiting for the EA or EIS.

EAs and EISs are usually carried out by teams of outside consultants. The teams may be strengthened with qualified local expertise and may also benefit from participation of the regional environmental staff. The process of submitting and securing approvals for EAs and EISs is the same as for I.E.E.'s.

C. Problems in the Current Environmental Review Process

1. The Add-On Problem

Although the General Counsel's interpretation of Reg. 16 requires that I.E.E.'s be prepared in conjunction with PIDs or PAIPs, in fact they are often treated as "add-ons" tacked on as an afterthought when all design decisions have already been made. This is consistent with the intent of Reg. 16, which is simply to flag project which might pose risks to the environment rather than to ensure a design process through which risk is avoided rather than mitigated. However, any environmental review occurring at the end of the project design will have little relevance in the face of strong pressure "not to rock the boat." The MEOs, REOs, and REAs have little incentive or power to insist on positive determinations if this means implementation delays, cost increases, or starting the design process all over again. Because of such pressures, MEOs and REOs will have a propensity to "rubber stamp" the proposed activities by giving them a negative determination.

If environmental concerns are to be addressed in a meaningful way, however, they must be raised at the start of the project design (PID/PAIP), and must be integrated into it, rather than added on just before the PID is sent off for review. This is difficult for several reasons. First, and most obviously, staffing levels are low in the environmental sector; the two staff members in each REDSO office must serve all of the Africa Missions, so their time is spread very thin. Many of the MEOs are not trained in environmental issues, and are not even able to undertake requests for categorical exclusions, much less any in-depth assessment. Second, some projects which do not have an obvious environmental focus can have significant environmental impacts nevertheless. The early conceptualization of these projects generally does not include any environmental experts, since they are not perceived as necessary, and by the time environmentalists are brought in it is already too late to have a significant impact.

2. Categorical exclusions

Reg. 16 allows categorical exclusions for a number of activities which could, in fact, have major indirect impacts on the environment. In particular, it excludes all training, research, and technical assistance from review, on the grounds that it does not involve physical intervention and therefore could not influence the environment.

This assumption is questionable. Whether these activities have an impact on the environment depends very much on what subject matter they address. For example, if A.I.D. pays to design a dam, but does not pay for building it, its input is considered not to have a significant

impact on the environment irrespective of how the dam has been designed. Similarly, if it sponsors a course on road engineering, there is no control on whether the techniques taught are environmentally sound. The regulations can, therefore, allow activities with major potential impacts to go through with no review at all.

3. Positive Impacts

Reg. 16 defines "significant environmental impacts" as negative impacts. Activities expected to have beneficial impacts on the environment are often construed by Missions as deserving of a negative determination with minimal review, and no further attention to actual impacts. This stems in part from a misinterpretation of Reg. 16 as a "balancing test", in which any project that is on balance more beneficial than it is harmful is given a negative determination.

Following this logic, any activity within a broad range of areas considered to be "environmental" - agroforestry, erosion control, biodiversity and ecotourism, natural resource economics, etc. - could be implemented with relatively little attention paid to the long term environmental impacts. However, because these activities are designed to impact on the environment, if their design turns out to be flawed their actual effects may be much more negative than activities expected to be harmful in the first place. Serious analysis of their impacts - at both the design and the implementation phases - is therefore warranted.

Moreover, there are many different ways to improve the environment, and the choice among them is not neutral. A simplified example will illustrate some of the potential problems. Suppose a project is designed to halt watershed erosion through tree planting. Suppose further that all biologically suitable tree species will achieve the erosion objective provided they are planted in a certain configuration and density. The design team has delineated three options, all having a positive impact on the environment:

Option 1: Species a and b will have a marginally beneficial impact on the environment at the least cost.

Option 2: A mix of species c, d, and e will maximize ecological objectives including wildlife habitat and as micro-organisms, etc.

Option 3: A blend of species a, b, c, and d offers a compromise solution in terms of environmental impacts and costs.

Option 2 will be the best for the environment, and option 1 the worst, but all three will be better than the status quo. Under Reg. 16 the analysts are free to recommend option 1 -- the least environmentally "friendly" option -- without explicitly presenting the tradeoffs between it and other options. The absence of any mechanism for more detailed analysis of positive impacts is thus a limitation in the regulation.

4. Implementation of Mitigative Measures

Under the existing system, the designers of projects which might harm the environment can propose mitigative measures in the I.E.E. and receive a negative determination. However, there

is no mechanism to ensure that these measures are, in fact included in the PP or PAAD. Consequently, they can easily be forgotten when the project is actually implemented. With the acceptance of the negative determination neither the MEOs, the regional environmental staff, nor the BEO have any further input into the project, so harmful impacts on the environment can go unchecked.

5. Environmental Impacts and Criteria

As pointed out above, Reg. 16 calls for review of the environmental impacts of projects, and requires detailed analysis when the impact is negative, but it does not set out the criteria for evaluation. What constitutes harm to the environment? Which parts of the environment? Is there an acceptable level of harm? Are we allowed to make tradeoffs between environmental considerations and other forms of welfare? These questions can be addressed through consideration of three related issues; direct and indirect impacts, tradeoffs, and sustainability.

a. Direct vs. Indirect Impacts

Regulation 16 is primarily concerned with negative environmental impacts and how to mitigate them. The precise term that Reg. 16 uses is "the reasonably foreseeable effects" of an action on the environment [section 216.1[c][2]]. However, most development activities will have a wide range of impacts both direct and indirect. It is useful to think about this problem in terms of "tiers" of impact. A project to develop irrigated perimeters along a river may destroy downstream fish production; this is a direct impact which should be identified and mitigated early in the design process. Secondary impacts occur when the irrigation project attracts more people to the project area, causing an increase in demand for fuelwood and charcoal and more forest land cleared to make room for houses. Tertiary impacts occur when the new residents produce solid waste, creating disposal problems. Thus, there is a "multiplier effect" of direct and indirect environmental impacts associated with the project. Consideration of the impacts of such a project should not therefore stop at only the direct impacts, as it may not be clear that they will be the most significant, especially in the long run.

b. Tradeoffs

Reg. 16 also stops short of defining when the negative impacts are "sufficiently bad" to warrant mitigative measures. Opting for a totally pristine environment would mean that almost no investment could take place, since any investment would invariably have some environmental consequences. Very few people would argue for such a stringent approach to environmental protection, although it is in effect the strategy used for the much narrower issue of protecting endangered species.

In practice, it is generally more constructive to interpret the assessment of environmental impacts as a matter of degree. The key question is how much environmental mitigation we can afford, or conversely, how much environmental degradation we are willing to tolerate in favor of other economic or social objectives. In this light, environmental impact assessment is seen as a resource allocation problem, where resources devoted to benefitting the environment must be taken away from something else. However, the regulations never explicitly require this consideration of trade-offs, and in fact the issues are not often analyzed through such a framework.

The analytical problem here is one of equating the marginal costs and benefits of mitigating against negative environmental impacts. Mitigation costs are fairly simple and straightforward to estimate. The "polluters" are largely responsible for internalizing the mitigative costs. For example, environmentally sound tree harvesting techniques will probably cost more than techniques that are not environmentally sound. The increased costs are internalized by the producer and passed on to consumers in the form of higher prices. By contrast, estimating the marginal benefits to society of using more costly but environmentally sound harvesting techniques is very difficult. Additional work on valuation techniques will be essential if this approach is to be implemented effectively in the future.

If costs and benefits can be estimated, a decision must then be made as to which option is considered the best. This will be a value judgment, not one which can be established *a priori* on the basis of the cost and benefit estimates. How this judgment is made will depend very much on who is making it. In particular, the values attached to present vs. future benefits, or to income vs. an improved environment, may differ substantially between USAID and host country officials. It is well known that demand for a pristine environment is highly income elastic; that it is valued more highly by wealthy people than by poor ones. For this reason A.I.D. officials are likely to value an improved African environment more than many African governments will.

c. Sustainability

The term "sustainability" is used often to describe a desired outcome of a project or program. This term can have a number of meanings, and it is important to understand the relationships among these meanings.

Ecological sustainability refers to the maintenance of the natural resource base so that it does not lose its long term income generating potential. In other words, don't harvest more than you grow, or you will deplete your resource and in the long run the income which comes from it will be reduced. This is the concept of sustainable development which underlies the DFA and most of A.I.D.'s policy on environment and natural resources.

Economic sustainability is a much broader concept referring to the mix of economic activities that maximizes income from all sources over the long run. The key distinction between ecological and economic sustainability is that the latter allows conversion of natural resource capital into other forms of capital if they generate more income in the long run. This conversion of natural resource capital into more productive physical and human capital has been the basis of Western development since the industrial revolution--although some people would argue that in the long run Western development paths will not prove sustainable because of the costs of the resulting environmental degradation. Because maximizing sustainable incomes (or, as some economists might think of it, maximizing sustainable welfare flows) allows the possibility of converting natural resource assets into other forms of capital, it is not necessarily compatible with preserving the natural environment. The A.I.D. decision to give priority to ecologically sustainable development will in some cases require a conscious choice against projects that lead to higher long-run incomes in favor of those that ensure preservation of particular environmental assets.

Project sustainability is a narrower concept, on which, however, the others might depend. Broadly, it refers to whether the activities introduced through a donor project will continue once

the donor involvement and financial support have ended. This, too, has an ecological and an economic (or financial) component. A project is ecologically sustainable if the techniques introduced can be carried on indefinitely without impediment from the natural environment; soil depletion, pests, or other natural changes which call for a change in technique. It is economically sustainable if it is financially rational for people to continue using these techniques once there are no donor subsidies or other incentives to make them profitable. Both of these conditions must be satisfied for a natural resources management project to be sustained. Moreover, if individual projects are not sustainable in this sense, then the resulting development strategy will also not be sustainable; in this sense "sustainable development" depends on sustainable projects.

The evaluation of the environmental impacts of projects should take into account all of these concepts of sustainability.

D. Management Options

1. Environmental Analysis Requirements

Many of the problems relating to the present approach to environmental assessment in Africa could be addressed if the Missions were given some guidelines on what kind of environmental analysis is required for project approval, when it must be done, and by whom. This section therefore proposes an approach to integrating the analysis of environmental questions into the broader design process.

a. Scope of Work

Analysis of the environmental impacts of Africa Bureau projects should involve systematic establishment of the opportunity costs and tradeoffs between environmental, economic, and other goals, and should lead to the formulation of a set of project options for which both environmental and economic costs and benefits are explicit. This analysis could be done by addressing a series of questions:

- **Country Environmental Background:** What are the legal and institutional frameworks for dealing with environmental issues in the country; the major actors, the domestic and international laws and regulations, the public and private institutions involved. Has there been any environmental planning activity in the country? If so, the proposed project should be integrated into it. What other environmental projects or programs are going on, and how do they relate to the proposed activity?
- **Environmental evaluation:** What will be the impact of each project option on the natural environment? The analyst will have to have the specific environmental skills and background to identify the issues, understand how impacts will be felt in the ecosystems of the region, and assess how each potential project formulation will affect the environment.

- Integration of environmental, economic, and other considerations:² The environmental analyst will work closely with the rest of the team to establish the tradeoffs among different project objectives, including sustainable income generation, the environment, WID concerns, social and cultural impacts, and others depending on the nature of the project. This will involve describing, in a single framework, the implications of each alternative formulation of the project for the different goals. The integrated presentation will make it possible to observe the tradeoffs among these goals in choosing among options. The presentations will include the cost of any mitigative measures needed in order to reduce harmful impacts on any of the target areas.
- Choice among the options: The choice among these options will eventually be made by the Mission and the host country government, based on the analysis presented by the PID design team. The PID will include both the option chosen and any mitigative measures which it entails.
- I.E.E.: Once the choice has been made among options, the environmental analyst can proceed with the I.E.E. or request for categorical exclusion, as needed.

b. Applicability

This analysis should be carried out under the following conditions:

- For any project for which an I.E.E. is now required, whether it is harmful, beneficial, or neutral in its impact on the environment.
- For training, research, or technical assistance related to activities which Reg. 16 considers normally harmful to the environment (Table I.2). Such training, research, or TA will still be excluded from a threshold determination under the regulation, but the analysis requirement will ensure that they will not slip through the cracks as they can now.

As discussed in Chapter 2, this requirement should also apply to any NPA activity which fits within the spirit of these two criteria.

c. Timing

The analysis should be carried out during the PID (or PAIP) phase of the design process. If the project is substantially changed between the PID (PAIP) and the PP (PAAD), the analysis should be repeated or brought up to date at that time.

d. Who does the analysis

Each design team for which this analysis is required should have a full time environmental specialist as a team member. The REO, REA, MEO or other A.I.D. staff member or consultant may fill this slot on the design team as appropriate.

² See the appendix to this chapter for a more detailed description of how this integration could take place.

e. Cost

The cost of this option results from the cost of an environmental specialist on each design team. A estimated cost would be \$25,000 per design if contractors are used; projects which need an environmentalist for both the PID and the PP could incur costs up to \$50,000. If A.I.D. staff do the work the cash costs will obviously be lower, although the opportunity cost will not. In some cases the environmental specialist could replace another design team member, either to save money or to keep the team to a manageable size. In such cases the financial costs will also be lower, but there will be an opportunity cost imposed on the design process. Additional financial costs should be covered through project design funding mechanisms.

2. Mitigative Measures

As already mentioned in the previous section, mitigative measures included in the I.E.E. in order to justify a negative determination must be included in the body of the project paper, and must be implemented in the project. Where a categorical exclusion is granted (for training, research, and technical assistance), mitigative measures proposed by the analysis must still be included in the project paper.

3. MEO Training

In order to reduce the workload on the regional environmental staff and simplify decision-making as to whether the environmental analysis is required, Mission personnel whose work relates to the environment should receive training in A.I.D. and Bureau environmental procedures. Mission environmental officers often know very little about Agency requirements, and therefore have to depend on regional staff or contractors for tasks which with minimal training they could handle themselves. Courses in the environmental procedures might be run out of the regional offices, and would cover Reg. 16 and any guidelines developed based on this report. Such training would enable Mission staff to determine the level of environmental review required for projects, prepare categorical exclusions, and similarly take more responsibility for complying with the regulations. This in turn would free up the regional environmental personnel to take a more active role on environmental problems which can not be handled by less specialized people.

The direct cost of such training courses would primarily be the cost of transportation and perdiems for the participants. This would be estimated at between \$1500 and \$2500 per person, if they were held in Africa; obviously the exact cost depends on where the courses are held and how many people attend.

4. Environmental Working Groups (EWG)

The Mission and regional staff working on environmental issues are encouraged to create informal environmental working groups through which they can begin educating other A.I.D. staff about how the environment plays a role in all projects. Frequently the environment is seen as a separate sector, something which can be isolated from other considerations, and which people in other fields do not have to worry about. Through an informal working group holding brown bag lunches or other low-key opportunities to talk about the issues, it may be possible to raise consciousness about how environmental concerns must be integrated into all project design.

The formation of a EWG may be particularly valuable in the regional offices, where the few positions for environmental staff are further constrained because of the problem of travel. The EWG would allow for several regional officers to act independently on environmental issues, and would help provide a network to support the environmental staff.

Appendix I.1

ECONOMIC APPROACH TO ENVIRONMENTAL ANALYSIS

This appendix describes in more detail the recommended approach to designing projects and programs. It builds on the already mandated process of deriving criteria for selecting among alternatives from A.I.D. Handbook 3, Appendix 1A. In this appendix analysts are directed to prepare several alternative project ideas (before the PID and PAIP stage) and develop criteria -- a ranking system -- by which the best alternative can be selected. The process involves converting judgments made into rankings and arranging them in tabular or other form to be used in deciding between alternatives.

In developing the ranking system to select between alternatives, A.I.D. should use the tools of economic and financial analysis to a larger extent in the design process. Economic and financial analyses should not be regarded as more important than the social, institutional or environmental analyses of a project. Indeed, any PP or PAAD must contain sections where the social, environmental and institutional impacts are described in detail. Knowing the probable magnitudes of these impacts before or during the project design is very useful in selecting technical alternatives for detailed analysis. In other words, only those alternatives which already address social concerns (income distribution, the poorest-of-the-poor), environmental concerns (choice of species, multiple use), and institutional concerns (absorptive capacity, recurrent cost implications) should be considered for detailed analysis. Having incorporated these concerns, it must be clearly understood that the economic and financial results only provide information on the relative attractiveness of the options. Economics, therefore, is the common denominator that reflects the social, institutional and environmental implications of the proposed project.

It is before or during the initial design phase that possible environmental impacts should be flagged for closer scrutiny during the PP and PAAD phase and that the stage is set for the need to monitor during the implementation phase. The emphasis at this stage should be on providing information on a range of possible technical options that enables decision makers to better choose which technical option to carry through to full and detailed design.

As an example (highly simplified), the design team for an agriculture project could prepare three technical alternatives for consideration by the decision makers:

- 1) use of chemical fertilizers and pesticides, crop yields estimated to increase by 60 percent,
- 2) locally produced organic fertilizer and natural pesticides, crop yields estimated to increase by 30 percent, and
- 3) a combination of chemical and organic fertilizer use, crop yields estimated to increase by 40 percent.

Alternative 1 may be judged to have negative environmental impact, the second alternative none. The third is the "compromise" alternative where some negative environmental impact is tolerated.

The decision maker must choose which alternative to pursue further, but now with some accountability as the tradeoffs and opportunity costs involved are known. If alternative 2 is chosen (no negative environmental impacts), the decision makers have, in effect, incorporated mitigative measures into the project through the process of selecting a technical alternative to implement. One tradeoff will be that crop yields will not increase by as much as they would under alternative 1. Another would be the difference between the net present values (NPV) or internal rates of return (IRR) associated with the alternatives. This kind of technical information should help guide the decision making process on which technical alternative to select for further detailed design during the PP and PAAD stage.

Taking the example one step further, a different version of Alternative 1 could be analyzed by adding mitigative measures, perhaps in the form of training in pesticide and fertilizer application, storage and disposal to ensure that it is not distributed in any harmful way. When analyzed, the additional costs of these mitigative measures will be reflected in the NPV or IRR results. The difference in the NPV of alternative 1 with mitigation and the NPVs associated with alternatives 1 (without mitigation), 2 and 3, are economic tradeoffs.

Adding yet another step to the example, the increasingly complex decision making process when analysts are mandated to account for many different and often conflicting objectives during the design phase. As discussed above, it is important that the environmental concerns are addressed during, not after, the design process. This essential requirement, however, is not applicable only to the environmental concerns. There are many other concerns perceived as equally important by their respective constituencies that should enter the design process early on. They include women-in-development (WID), privatization, social, institutional and other concerns. Ideally, project/program design teams should include representation of all of these concerns in addition to the technical ones.

To illustrate, suppose analysts must address the following objectives:

- social (income distribution, WID concerns): depending on which segments of the population targeted, the poorest-of-the-poor or the relatively wealthy;
- environmental (soil conservation, etc.): depending on the management intensity of the proposed interventions. The addition of mitigative measures such as contour dikes, training (as discussed above), etc.;
- financial returns (maximum IRR or NPV from the local perspective): depending on interaction between costs of the interventions and benefits derived.
- crop yields (yield response to interventions): depending on management intensity of intervention.

Table 1 illustrates the process (the numbers used are hypothetical). Of the three alternatives, the analysis identifies alternative no. 1 as financially optimal from the farmers' perspective (it has the highest NPV). How well the other objectives are satisfied is also ranked based on the judgments made by the project formulators (and by farmers, agronomists, and other key informants). If we opt for the financially optimal alternative, no. 1 is the obvious choice having

the highest NPV of 120 LC. If optimization of the social objective is our primary concern, we will opt for alternative no. 2 associated with a NPV of 50 LC. The opportunity cost between the two is $120 - 50 = 70$ LC. The opportunity cost of the environmentally optimal alternative, no. 3, is $120 - (-25) = 145$ LC.

TABLE 1: TRADEOFF ANALYSIS

Alt.	NPV	RANKING			TOTAL Without Weights	With Weights
		Financ. Return	Social	Environ- mental		
1	120	1 (4)	2 (2)	3 (3)	5	17
2	50	2 (4)	1 (2)	2 (3)	5	16
3	-25	3 (4)	3 (2)	1 (3)	7	21

Next, the analyst can add up the ranking scores (without weights) to get a measure of the extent to which all objectives are satisfied in each alternative. The lowest score identifies which of the three alternatives will best address all of the objectives simultaneously. In this case we are indifferent between alternatives 1 and 2, both with a combined score of 5 in the table.

When applying relative weights (to express relative importance of the objectives) to the ranking we get a different result. With weights of 4, 2 and 3 applied to the financial, social and environmental objectives respectively, the combined scores are obtained by multiplying the ranks with the weights and adding across the rows. Again the lowest combined score indicates which alternative best satisfies all of the objectives simultaneously, in this case alternative 2 associated with a NPV of 50 LC. The problem is who decides on which weights to apply -- what is the relative importance of the objectives? The higher level policy makers must make these decisions, not the analysts.

Tradeoff analysis as described here is a shortcut way of facilitating the decision-making process. It compares between the NPVs derived for each alternative based on the quantifiable costs and benefits. For example, the NPVs do not reflect environmental values. All we do in this approach is solicit the judgment of knowledgeable people as to which of the three alternatives is most "friendly" to the environment or has the most favorable social impact. In full project preparation it may be necessary to carry out more rigorous environmental and social analyses.

Chapter II.

NON-PROJECT ASSISTANCE

A. Introduction

Non-project assistance is playing an increasingly important role in the activities funded through the Africa Bureau. Up to 20% of the Development Fund for Africa (DFA) resources may be used in NPA activities. In addition, the types of actions typically supported by NPA - e.g. policy and institutional reform - may also form components of sector assistance projects. Thus the environmental issues usually raised by NPA may be relevant to project assistance as well.

The important concerns in dealing with NPA and similar activities essentially fall into three areas; routine environmental evaluations, long-term impacts of policy reform, and encouraging African governments to take responsibility for safeguarding their own environments. Each of these will be discussed in turn in this chapter.

B. Environmental Evaluation

The most recent proposed revision to the Africa Bureau NPA Guidance requires completion of Initial Environmental Examinations for all NPA activities. Moreover, the process for designing NPA activities essentially parallels that of project assistance. Many of the problems and analytical issues discussed in Chapter I regarding project design process are the same for NPA. This makes it possible to follow the same approach to integrating the analysis of potential environmental impacts into the NPA design process as was recommended in the first chapter for projects.

This essentially involves inclusion of an environmental specialist on the design team of any program requiring an I.E.E. under the criteria of Reg. 16, or which provides TA, research or training on subjects which could bear on the environment. Since the proposed NPA Guidance now requires an environmental analysis for all programs this ensures that the analyst actually participate in the design teams. The advantage of including him or her on the teams is that it will facilitate the integration of this person's work into the final design.

Including the environmental specialist on the design team will also make it easier to follow a design process like that described in Appendix I-1 of this report and in A.I.D. Handbook 3. In this process, several relatively complete program options are sketched out in enough detail to permit analysis of the tradeoffs among them with respect to economic, environmental, socio-cultural, and WID objectives, as well as others as appropriate. The choice among the options is then made based on the (often subjective) assessment by A.I.D. and the host country as to which tradeoffs are acceptable and which are not.

Realistically, most programs are probably not designed this way at present. Rather, they might be thought of as being modelled out of clay, with pieces added on, taken off, and reshaped incrementally over time in response to the inputs of the many analysts participating in the design process. To the extent that options are weighed against each other, the comparison is likely to involve details of the design rather than broad concepts. An objective comparison of fully developed program options might be preferable, but it could be very costly and difficult to manage.

However including an environmental specialist on the design team could at least help ensure that component of the analysis was integrated with rather than pasted onto the final design.

C. Policy Reform

Section 496 of the Foreign Assistance Act, which sets out the terms of the DFA, requires that "policy reforms shall also include provisions to protect...long-term environmental interests from possible negative consequences of the reforms." Meeting this requirement will be difficult, because little is known for sure either about the impacts of policy reform on the environment or about how to mitigate those impacts.

This requirement calls for an analytical consideration of the kinds of policy reforms which are likely to have an impact on the management of the environment in the long run. At a glance, the list might include reforms which have some impact on:

- the forms of land tenure which are permitted by law or tradition;
- how land is used, and how its use responds to economic change;
- structures for marketing and pricing agricultural products;
- trade policy and the terms of trade between agriculture and industry;
- import pricing, subsidies, quotas, tariffs, and other trade policy tools; and
- exchange rates.

As NPA activities are currently designed, the impacts of such policy reforms are typically analyzed by economists whose focus is on impacts on economic growth and development. Those people, not surprisingly, do not see the environmental issues as particularly important and do not know how to address them. Environmental specialists do not currently evaluate policy reforms, for several reasons. First, unless the project is specifically targeted at environment and natural resource management, there may not be any environmental specialists on the team. Second, environmental specialists are not usually policy analysts or economists; their background tends to be in the life sciences and their orientation is towards the impacts of physical rather than policy interventions. Like the economists, therefore, they are not well equipped to address the impacts of macro policy reform.

Simply pointing out to the Missions their obligation to address and mitigate the long-run environmental impacts of NPA-funded policy reforms is not likely to be very constructive. The Africa Bureau can launch and support this effort, however, by undertaking some background work to identify and analyze the potential relationships between macro policy reform and the management of natural resources. Such an effort might have several steps.

The first step would be to review the theoretical and empirical work which addresses the impact of structural adjustment, macroeconomic policy, and other policy reforms on the management and quality of the environment, in order to flag the most important concerns and

identify areas for additional research. This would be done through a literature review and by identifying and contacting people now working on this issue. This review would have two outputs; first, a paper reviewing work in the field, and second, a set of recommendations for what the Bureau should do next.

The next step for the Bureau will depend on how much can be learned from the literature. Ideally, enough can be learned to permit development of guidelines on how the Bureau and the Missions should fulfill the DFA requirements. This is unlikely, however. Instead, the next steps are likely to involve keeping up with the results of ongoing research, launching further research efforts in this area, and developing systems to monitor the environmental impacts of policy reforms instituted under NPA. Over time such efforts should lead to enough understanding to permit the Africa Bureau to develop simple guidance for the Missions, but it would be unrealistic to think that this issue will be understood quickly.

The literature review and development of the resulting plan of action or guidelines can probably be done in a few months, at a cost of up to \$50,000.

D. Institutionalizing Environmental Protection

The NPA financial support provided to African governments when policy reforms are made raises a broader set of concerns, as well. How can A.I.D. address the potential environmental impacts of the expenditure of these funds, when it does not know how they will be used

Obviously, in an immediate sense it cannot; A.I.D. is oriented towards discrete projects whose impact can be traced, but in this case there are no discrete projects. Instead, what is needed is for African governments to take environmental considerations into account in making all of their own decisions about government investment and operations and in regulating the private sector. The basic question therefore is how A.I.D. can encourage African governments to be concerned about protecting their own environments.

The answer to this question is found in the whole thought process that the Missions go through in designing and prioritizing their environmental projects or programs. In the context of this report it would be inappropriate to recommend one approach to environmental projects for all Missions. However, a brief consideration of the steps in such a planning process and the options which might be considered by the Missions may be helpful in informing their thought processes.

1. Problem Identification

The first step is to determine what the most significant environmental problems are in the country. In most African countries environmental concern has focused on natural resources management, because A.I.D.'s overall development strategy for Africa focuses on rural rather than urban areas. Problem identification in the environment sector has often been done in a rather *ad hoc* fashion, simply by developing an anecdotal appreciation of what the most important problems are or which regions should be the target of environmental investments. This is probably the most common approach to defining environmental problems at present, and it is clearly a low-cost approach to defining the problems.

The identification of problem areas could, however, be based on a more systematic analysis of data or indicators which give a more objective presentation of the state of the environment, at a much higher cost than the *ad hoc* approaches. Several efforts to develop such data are underway right now.

a. NRM indicators framework

The NRM indicators framework is being developed by the Bureau in order to monitor accomplishment of the objectives of the DFA. This approach is oriented towards showing the direct and indirect impacts of projects and NPA on resource-based income.

b. Ecological monitoring

The ecological monitoring work of the Centre de Suivi Ecologique in Dakar, held up as a model for other countries, focuses on developing indicators of physical change in the natural environment, without necessarily establishing causal relationships between the physical environment and human activity.

c. Environmental accounting

Environmental accounting, which is receiving more A.I.D. attention in Asia than in Africa at present, focuses on developing a system of economic accounts (modifications of the national income accounts) which incorporate environmental assets and flows, in order to value each environmental line item relative to the other line items and to other components of the economy. This approach uses economic valuation rather than physical indicators to prioritize environmental problems.

d. Risk assessment

A fourth approach is to develop criteria for reviewing environmental problems and determining which pose the greatest risk to human health or the natural environment. This could involve using data from any of the others approaches, or building new data bases; the key distinction between this and others is that the criteria for prioritization relate to degree of risk rather than to economic valuation or physical indicators.

Missions could consider following any of these strategies for prioritizing environmental problems, or developing their own. The key question in deciding to do this is whether that additional investment in problem-identification is justified by the more accurate understanding which will result.

2. Solution identification

Once problems have been defined, the search begins for solutions. Several strategies for identifying solutions are being used in Africa now. Some Missions are investing resources into assessing the legal frameworks for environmental protection in their countries, as a first step in developing new laws under which host governments will take charge of their own environments. Such reviews are probably a very useful step, and will contribute effectively to solution design under

A.I.D. auspices or those of other donors. Other Missions are linking their work to the National Environmental Action Plans (NEAPs) being prepared in many African countries under World Bank auspices. The NEAPs, which are discussed much more thoroughly in the fifth chapter of this report, are a comprehensive process of environmental review and planning directed (at least in theory) by the countries themselves in response to a demand for control over their own environments. By participating in the NEAP process, A.I.D. Missions lend their support to a joint venture to help African governments take control, rather than having to pilot the whole planning process themselves. Clearly this is a laudable approach where it is an option.

3. Solutions

The environmental planning process may be thought to have a tool box of potential solutions among which it can choose in order to address the problems of any particular country. The items included in this tool box come from western experiences and from the literature on environmental economics. Among the major items in the tool box are:

a. Environmental reviews

These require assessment of the environmental impacts of proposed investments before they receive government authorization to proceed. This approach is common in the United States, and applies to A.I.D. projects in Africa under Reg. 16. Similar approaches are taken by many other donor agencies in reviewing their proposed investments in Africa. Would it be useful to encourage African governments with no environmental reviews to develop their own criteria for environmental assessments to be applied to all construction in their countries? In some countries - especially where significant investments are made with private funding - they might be worthwhile. Where all investments involve donor funds and are already subject to donor or in-country reviews, it might be of lower priority.

b. Regulatory approaches

These involve establishing acceptable levels of pollutant discharge, sewage treatment, or other harmful activity beyond which no one in the country may go. Although they are not viewed as optimal by either scientists or economists, they have had significant impacts on air and water quality in the United States and perhaps elsewhere. To the extent that urban pollution is a major problem in African countries - and it is increasingly being cited as a major problem - such approaches will be useful.

c. Investment Programs

Many of the environmental planning processes carried out in African countries (NEAPs, Tropical Forestry Action Plans, National Plans to Combat Desertification, and so on) lead to development of an investment program, sometimes referred to as a "shopping list" of environment and natural resource projects which governments hope the donors will fund. These usually include activities in environmental education and public information, introduction of new soil or water

management techniques, infrastructure projects, forestry development activities, and other specific activities targeted at changing the way individual resources are used.

d. Incentive-based approaches

Incentive-based tools are designed to change the economic climate so as to encourage effective environmental management through free market processes rather than government or donor investment. They include such strategies as marketable pollution rights, changing land or tree tenure systems, ecotourism, and so on. For the most part they are discussed more than they are implemented, but many natural resource policy analysts and economists feel they hold great potential and should be a more important part of future environmental management systems. Where they have been vigorously applied they have been quite successful.

e. Democratization and participation

Some analysts have concluded that the only way that African governments will take environmental protection more seriously is if there is grass-roots pressure for them to do so, as a result of political change which allows the affected populations a greater voice. Although much of the democratization agenda goes far beyond the scope of environmental management, a basic tenet of this approach is that local people need better information about the environment in order for them to know what is happening and be able to force the government to do something about it. This therefore leads to an emphasis on information systems development and public access to information at the local level. This is another argument for the ecological monitoring and environmental accounting activities discussed above as tools for problem identification, and is the basis for the participatory approach used in the NEAP process.

4. Government Implementation

The fundamental issue is how to ensure that African governments take responsibility for carrying out the environmental planning process or implementing its solutions. At present there seem to be two approaches to this problem. The NEAP process is one of them; it encourages and rewards governments for initiating and implementing their own planning process and identifying the right solutions for their countries. In the A.I.D. system (as well as those of other donors), conditions precedent or "conditionality" are the other; they require governments to carry out specific activities as a prerequisite for receiving funding.

Although conditions precedent may be a more effective way of ensuring that specific activities must be implemented, in general the motivation of the NEAPs seems like a preferable approach. The activities required by the conditions precedent may look optimal to the expatriate design team, but from the country's perspective, anything which they develop themselves will look better, and they will have more motivation to implement their own ideas effectively. Moreover, African civil servants are quite clever at complying with the letter of donor requirements, when necessary to obtain funds, while keeping the spirit closer to that preferred by the government.

When they come up with their own strategies for addressing environmental problems this is less likely to be a problem.

There is another dimension to the conditions precedent issue. A.I.D. may want to encourage many different objectives through conditions precedent attached to NPA; not only environmental concerns, but the role of women, protecting indigenous peoples, democratization, allowing markets to work freely, and so on. Implementing any of these is likely to cost the government money, which it may not have. Moreover the Mission must choose among them; it cannot load all of these onto a single program. It is not clear that the environmental conditions will have the highest priority when faced with so many other objectives. For this reason, as well, conditions precedent may not be the most effective way to encourage African governments to take responsibility for their environmental protection.

Chapter III.

MONITORING ENVIRONMENTAL IMPACTS OF PROJECTS AND NPA

A. Introduction

Monitoring is receiving a great deal of attention in the Africa Bureau under the DFA. It is addressed in this report primarily because many projects are being granted negative determinations under Reg. 16 for which follow-up seems warranted. In order to ensure that they do not, in fact, harm the environment. One basic principle runs through this discussion of monitoring. Before any data collection effort begins, it is essential thoroughly to understand what questions we are trying to answer, what difference the answer will make, and therefore what kind of information we need to gather. There cannot be one single monitoring effort. Anyone who makes decisions needs information; the exact decisions will determine what information will be of value and the form which monitoring should take. Thus, we cannot begin a discussion of monitoring by asking what data to collect or what indicators to follow. Rather, we must begin it by asking what questions we need to answer, and only then can we consider what data or indicators might provide those answers. Monitoring can be an extremely expensive and time-consuming activity; therefore it is essential that we consider what we hope to get out of it before we require anyone to do it.

B. Framework: Why Monitor?

The first question to ask in thinking about environmental monitoring is "why?". We can identify four generic types of monitoring. The lines between them may blur, and it may not always be obvious how to classify any one activity. However, it is still useful to distinguish among them, because it forces us to think about why we want to monitor; this thought process may of itself be more important than the result.

The first type of monitoring might be called "tracking". It involves monitoring an activity or program to ensure that it is on schedule and to flag unexpected problems. Tracking is a standard tool for project and personnel management. In many cases tracking will be internal to the project; the people managing the activity will gather information to ensure and demonstrate that they are on track with their work. When the tracking is a form of oversight or control, however, is best done by outsiders, the presumption being that some form of checks and balances is needed which cannot come from within the project.

The second type of monitoring, impact monitoring, essentially involves tracking the impacts of an activity on target or non-target populations - that is, determining whether the desired impacts or inadvertent impacts are occurring. For example, this could involve monitoring the physical and natural environment, in order to ensure that no unanticipated negative consequences result from project activities. This kind of monitoring may be particularly important in projects which are expected to have beneficial impacts, or which include measures to mitigate potential negative impacts.

It is important to distinguish between monitoring which determines whether projects are being carried out according to plan and having the intended impacts, and that which is designed to identify inadvertent impacts on the environment. These will be the same for projects whose primary purpose is to improve the environment, but for those whose targets are elsewhere the two monitoring efforts will be independent.

The third type of monitoring is really research. Often projects are designed around a hypothesis as to what will benefit target populations, a hypothesis that in fact has not been tested. For example, new land tenure systems may be introduced because they are expected to lead to sustainable management of natural resources. In these cases it is important to follow the project closely in order to determine whether the hypothesis was right, or if it proves incorrect, why it failed. Only with this information will it be possible to learn from experience in order to design more effective interventions in the future. In this case the monitoring really serves a research purpose, since the information obtained adds to knowledge about the results of an activity, but does not necessarily serve to keep it on track. Research monitoring may often be part of a larger effort to learn from experience, which could involve following a number of projects at once in order to permit comparisons and more analytically sound conclusions.

The fourth type of monitoring might be called problem-identification. It involves following a broad situation to flag the most important problems. It is not usually linked to a particular activity, and does not try to establish a relationship between specific projects and the situation being followed. Rather, it provides the information needed to identify areas of concern, so as to choose those issues which require additional work or analysis. Much of the ecological monitoring requested by Sahelian heads of state falls into this category; they are looking for a broad-brush picture of the evolution of the environmental situation in their countries which will allow them convincingly to make a case for problems that are perceived to be important. Such monitoring serves to identify problems but the information gathered is not likely to be adequate to solve them.

There is no one-to-one correspondence between types of monitoring and types of data. Although in a given area the data needed to identify problems are likely to be considerably less detailed than those needed to solve them, we cannot say that each type of monitoring will call for one clearly discernible type of data. Rather, the same data might meet several needs, depending on the questions we are trying to answer through our monitoring effort.

C. Framework Application: Why Monitor in the Africa Bureau?

The Africa Bureau's monitoring needs are of several types, and at several levels. They can be placed in this framework as a first step to analyzing the information are needed and what should be monitored.

1. Project-level monitoring

The issues which motivated our direct concern about monitoring have to do with the impact of individual projects on the environment. Several purposes for monitoring probably come into play here. Clearly impact monitoring will be important for projects expected to have positive impacts or for which mitigative actions are being taken. In this case it will be important for project designers to: anticipate potential environmental impacts; determine what variables should be

monitored; identify needs for base data collection; and propose an institutional framework for carrying out this monitoring. Impact monitoring could be done either by project staff or by outsiders. Where the project or its potential environmental impacts are politically sensitive, the tracking should probably be done by outsiders. In other cases it may be done by the project staff; however in either case the full monitoring data should be publicly available for review and analysis.

Tracking will be important on projects for which measures have been proposed in the I.E.E. to mitigate negative environmental impacts. The first section of this report proposed that implementation of such measures be legally binding; if so, tracking will be needed to ensure that they are in fact carried out.³ This should probably be done by the Mission staff rather than by people within the project. It is not likely to take a lot of time, but it does warrant some oversight from people outside the project.

In some cases research may also be needed at the project level. Many techniques for improved natural resources management have been introduced in the past few years on the assumption that they will be beneficial, without any hard evidence that they actually were. Research may be warranted, for example, to measure the impact of soil conservation techniques such as contour dikes and windbreaks, to determine the physical and social conditions under which each is the most effective. Usually launching rigorous research activities will be beyond the scope of any individual project, and will be done by outsiders working with data collected from many projects. However, it may be quite interesting to involve project staff in research through the International Cooperative University, a French government entity which awards degrees for independent study and "action research". This possibility is discussed further in chapter 6, which addresses institutional mechanisms for monitoring.

2. Program level monitoring

The need for program-level environmental monitoring in the Africa Bureau arises from the requirement to demonstrate to Congress that projects funded under the DFA are having an impact on Strategic Objective 3.1, achieving sustainable increases in productivity through better management of natural resources. There are probably three kinds of monitoring involved here. Obviously demonstrating that the Bureau's activities affect resource-based incomes is impact monitoring. However, because of the difficulty of establishing a causal relationship between broadly dispersed activities and increases in income, the five-level indicators framework presently used by the Bureau breaks down the links in the chain of causality and suggests hypotheses about how each link relates to the next, which should be verified through research monitoring. In addition, this framework is also a form of problem identification, in that it is designed to inform Congress about whether resource-based income generation continues to be a problem or the situation is improving.

3. National monitoring

³ Tracking may, of course, also be desirable for routine project management; however this is not the subject of this report.

The creation of a national capacity for environmental monitoring is being proposed in many circles, in response to the emphasis being placed on natural resource issues in many African countries. In addition, the recent surge of interest in remote sensing and geographic information systems (GIS), in some places supported by the example of the Centre de Suivi Ecologique in Senegal, has led to much discussion of the need for national ecological monitoring centers.

Although there is a great deal of talk about "demand-driven" information systems, most of these discussions still have not yet given enough empirical attention to the demand side of the monitoring equation. What would such centers monitor, and even more importantly, who would use the results, and for what? Building such centers out of an interest in exploring the potential of relatively new technologies might turn out to be valuable, but it could also easily turn into a very expensive activity which does have much impact on African development.

A number of donors have recently funded environmental information systems (EIS) in the planning efforts in West Africa. One of the major findings has been that although many people want to produce data, few want to use them. Such efforts are underway with UNSO and World Bank support in Burkina Faso, Mali, and Ghana, under the auspices of the NEAPs and the National Plans to Combat Desertification. These efforts have identified government agencies, universities, and regional organizations which would like to become centers for ecological monitoring, GIS, EIS, production of land data, and other data supply activities. However, finding users for the data has been harder; because policy decisions are highly politicized, there is not yet significant interest in using information to improve the management of the environment. A case is being made, therefore, that further investment in information systems development should be postponed until the demand for the data has been more clearly expressed.

To the extent that demand has been expressed, it seems to be largely for problem-identification data. Both national leaders and, perhaps even more importantly, donors want data with which to identify the major environmental problems in their countries, in order to get out the general lines of their environmental policies. Interest on A.I.D.'s part in linking the NRM indicators framework into national monitoring effort would fall under this heading; the framework is essentially a problem-identification tool, and the objective would be to set up the national monitoring systems with which to implement it under government auspices. Any efforts of this sort should involve clear specification of what kind of data are to be produced, to meet what needs, and satisfy which users, in order to ensure that resources are not invested in data development and monitoring which will never be used.

4. Integrating monitoring levels

When Missions are faced with the need to monitor at the project and program levels and possibly at the national level, the question naturally arises as to whether it is possible to have a single integrated monitoring system. Often the information needs at the project level are the same as those at the program or national levels. Similarly, the data useful for monitoring the impact of one project may not be useful on a different project, so standardizing data collection across projects in order to meet program or national needs may involve tradeoffs between the needs of individual projects and those of others using monitoring data. On the other hand, an integrated monitoring system would make it possible to economize on data collection, and ensure comparability across

projects. While integrated systems will be difficult to design and will require compromise, in some contexts they may be worth the cost.

D. Management questions

In dealing with the environmental monitoring at the project level, the Africa Bureau must address a number of different issues.

1. When and how much to monitor

The first issue which the Bureau should address is how to develop explicit criteria or guidelines for when the environmental impacts of projects should be monitored. Such criteria would be useful because they would allow Missions to plan for monitoring in the process of doing project design, rather than having the monitoring be an "add-on" once the project paper is completed.

Some possible situations in which monitoring could be required are:

- When a project receives a negative determination because the anticipated impacts on the environment are positive. The concern here is that projects which we think will be beneficial may not work out as anticipated, in which case they could be quite harmful to the environment. For this reason tracking and impact monitoring are essential for these projects. Research may also be quite important, to help us develop a better understanding of how we can improve the environment. The same applies to A.I.D.-supported local-currency funded activities designed to improve the environment; this will include both physical interventions and policy reform.
- When a project receives a categorical exclusion for training, technical assistance, or research, but those activities pertain to an activity normally having a significant effect on the environment as specified in Reg. 16. This would include, for example, large scale water and sewerage projects on which USAID finances technical assistance, but does not directly finance the capital development. In the first chapter of this report we recommended that a detailed environmental analysis be required for such activities, even though an I.E.E. is not. Monitoring would only be required in selected cases. General impact monitoring of training or TA would not be useful, since by the time the results were in it would be too late for USAID to have any impact on the activity. On the other hand, for research, or if the training or TA were in new, untested techniques, research monitoring could be important to learn whether the same approaches might be viable elsewhere. Again, this would apply both to projects and to NPA.
- Any project, program, or NPA-funded activities involving pesticide use should receive impact monitoring, and perhaps other types as well. (See Chapter IV below.)

In developing guidelines for when monitoring will be required, the Africa Bureau should carefully consider the tradeoffs between the importance of the potential environmental threat and the costs of monitoring. Because monitoring can be very expensive, easily exceeding the value of small projects, it is important to strike some balance between the desire to be aware of environmental impacts, and the project resources which will be expended in doing so. For this reason, both the requirement to monitor, and the form which that monitoring will take, may be linked to the value of the project. For example, the Bureau might require monitoring only for projects over a specified value, or specify that no project be required to devote more than a fixed proportion of its budget to monitoring.

This can be an extremely thorny issue, however. The magnitude of the resources devoted to monitoring a project should logically be determined by the seriousness of the threat which it poses to the environment, and not to its cost. Yet, as some Missions have already seen with NGO micro-activities, which can be environmentally harmful on a local scale, the costs of monitoring could quickly overwhelm the resources devoted to the project. Setting a fixed share of the budget which goes to monitoring would make it possible to carry out such projects anyway, by limiting the rigor with which they are monitored. On the other hand, a case can be made that it would be better to link the monitoring effort only to the seriousness of the threat, not the size of the activity, and accept that projects which pose a serious threat will never be carried out at all, because all of their resources would end up going to monitoring. Unfortunately, this scenario could have the unwanted outcome of eliminating many or all NGO micro-activities, at least if one believes the argument that they are among the worst environmentally because they cannot afford high-level technical expertise.

On balance, the best approach may be to establish a suggested upper bound beyond which projects will not "normally" be required to devote resources. This leaves the tough questions up to the judgment of the Bureau Environmental Officer, i.e. the projects where s/he feels additional monitoring effort is warranted and chooses to require it even if this means devoting an unusually large share of the budget to that effort.

The question then becomes what share of the budget should "normally" go to monitoring. A first approximation could be derived by looking at two figures: how much is now spent on project monitoring, both of overall project activities and of environmental activities; and the hypothetical cost of "ideal" monitoring of a sample of projects. Consensus within AID/W and among the Missions might be reached at a figure somewhere between the "real" and the "ideal".

2. Who should monitor

The question of who should do the monitoring can be asked at two different levels. The first, which we will address here, deals with the roles of those implementing the project and those outside of it in monitoring. The second, which deals with specific institutional mechanisms for external monitoring, is addressed in Chapter VI.

We can identify several discrete tasks in project monitoring: raw data collection; data processing and treatment to produce aggregates, indices, and other "value added products"; analysis of raw or treated data; and using indices or analytical results to draw conclusions, identify problems, or flag new issues. Who carries out each task depends on the type of monitoring and whether it

is essentially cooperative or adversarial in nature. Some examples will help explain what this means.

A tracking system designed to let well-intentioned project managers follow their own activities to see if they are fulfilling their own targets is cooperative; it is designed to let people oversee their own work and modify their actions in response if appropriate. Consequently, the system can be implemented by those running the project, since they have no incentive to distort the results.

By contrast, a tracking system designed to allow watchdog oversight of the environmental impacts of a controversial project whose proponents claim it is beneficial, but whose opponents claim it is harmful, is adversarial. The data analysis and use certainly must be done by outsiders, and sometimes a strong case can be made that even data collection and treatment will be distorted if left to those running the project.

Most monitoring activities are somewhere between these two extremes. Nevertheless, they give us a way to approach the question of whether a given project should be monitored by insiders or outsiders. In most cases that are not highly adversarial or controversial, data can probably be collected by those running the project⁴, but they should be publicly available for analysis or use by anyone who is interested. Whether raw or treated data should be made publicly available depends on what kind of data they are, what treatment is to be done, and whether there are confidentiality issues which would argue against releasing any raw data. In some cases, certain users will want to process and analyze raw data themselves, while others may be interested only in indices and secondary data.

3. How to use the results

It is essential that when a monitoring system is required and designed, we know what will be done with the results. This is particularly important for impact monitoring. If we find that an activity is having an unanticipated negative impact on the environment, what do we do? As a regulatory matter, Reg. 16 (section 216.3[a][8]) requires that the EA or EIS process be followed at that point, and if necessary that the project be changed. Yet we must recognize that there will be strong pressures against changing projects which are already approved and in place. For this reason, it is important to specify before monitoring begins, precisely what will constitute an acceptable or unacceptable impact, and what will be done if the impacts are unacceptable. This will in some sense lock the project into addressing those impacts, and make it easier to resist the pressure, in effect, to sweep them under the rug.

This issue may be even more difficult in the case of research. What do we do if half-way through a research effort we find that a project is having a negative impact on the environment? To change the project could invalidate the research and make it impossible to learn more from the effort. Yet not to change it would obviously be harmful to the environment. In practice this may be a moot point, because A.I.D. involvement in any individual project may be over by the time research results show a negative impact on the environment, so even though Reg. 16 requires a

Except where monitoring goes beyond the project life, in which case it must be done by outsiders. See section 4 below.

change of course for the project, it may be impossible for A.I.D. to change the project anyway. Nevertheless, it is an issue which should be addressed directly in the design of research activities.

4. Time frame for monitoring

The full impact of many projects will not be felt until long after USAID funding has ended and the activities have been taken over by the host country. In order to be useful in these cases, monitoring must go beyond the life of the project. It is therefore necessary to develop an administrative mechanism which allows monitoring activities to have a duration of much longer than the typical five-year project or CPSP. Monitoring which goes on beyond the life of the project clearly must be carried out by someone other than the project staff, and by an organization in a position to take on a long-term ongoing activity. This will have important implications for the choice of institutional mechanisms, and is addressed in Chapter VI.

5. Paying for monitoring

Project level impact monitoring and tracking should be paid for out of project funds. This will mean that the cost of the monitoring effort relative to that of the project will be obvious from the project budget, and will thus make it easier to keep monitoring costs within the percentage established by the Bureau as suggested above. Moreover, it is appropriate that monitoring be accounted for by A.I.D. as a regular project cost, in order that the tradeoffs between resources devoted to monitoring and implementation be clear.

Research monitoring and problem identification will be more complex, because they are likely to involve both project resources and separate funding specifically for the research or monitoring activity. Moreover, when the data are not of direct use to the projects themselves, it will be harder to argue that projects should pay for their share out of their own budgets. On the other hand, requiring projects or Missions to use their resources on activities which are of direct benefit only to some other branch of the Agency is standard operating procedure in other areas, so environmental monitoring should, perhaps, be no exception.

6. Designing the monitoring system:

The monitoring system should be designed during preparation of the PP or PAAD. The design should be done by the team member responsible for the environmental evaluation (see Chapter I), and must explicitly address each of the following issues:

- the purposes of monitoring: tracking, impact monitoring, research, problem identification, or some combination;
- what questions the monitoring system(s) must answer, and why those are the important questions;
- what analytical framework(s) will be used for monitoring. This is particularly important for research, but applies to all monitoring effort;

- what data must be collected, both at start-up to establish a baseline situation, and throughout the monitoring effort;
- who will do the monitoring; in particular, what will be the roles of those implementing the project, outside monitoring groups, and mid-term evaluators;
- how monitoring results will be used in running the project or designing future projects;
- how much the monitoring will cost, both in total and relative to the rest of the project budget;
- when the monitoring will occur; when baseline data collection will be done, frequency of ongoing data collection, how long the monitoring goes on relative to the life of the project.

Chapter IV.

PESTICIDE MONITORING

A. Introduction

The issues of pest and pesticide management are critical to both institutional development and food security, and should play an key role within PARTS under the DFA mandate. In keeping with the scope of work for this project, this chapter focuses in particular on the issue of pesticide monitoring.

B. Need for Pesticide Monitoring

The use of pesticides in A.I.D. projects - or indeed in any context - raises a number of questions which may warrant analysis and monitoring:

- Environmental health: What are the impacts of pesticide use in wetlands, forests, and croplands, as well as on biodiversity, endangered species, and other aspects of the environment. What are the impacts of chemicals dispersed by wind, groundwater flows, and other natural mechanisms?
- Human health: What are the potential impacts of different pesticides on human beings if they are exposed to them? How are people exposed? What can be done to minimize such exposure or mitigate its impacts?
- Pesticide management: How are pesticides being handled? This refers to whether correct procedures for their use are being taught and followed; how they are stored, transported, and disposed of when obsolete; and how old containers are used once empty.
- Food contamination: Are food crops which have been sprayed with pesticides safe for human consumption? Are the appropriate chemicals being used for the appropriate crop? Unsafe crops are likely to be detected if they are exported to Europe or the United States, where inspections are routine, but they are less likely to be detected if destined for local consumption.
- Effectiveness: Are pesticides an effective way of dealing with pest problems, both in the short and in the long run? What are the alternatives? Will they need to be monitored as well?

C. Monitoring needs

All four of the monitoring types identified in the previous chapter would clearly be valuable in the case of pesticide use, given the potential for both human and environmental harm.

1. Tracking

Project-level tracking is needed on all activities using pesticides, in order to ensure that sound practices are in fact being followed for transport, storage, application, and disposal. Reg. 16 (section 216.3[b][1]) requires that I.E.E. for activities involving pesticide use or procurement provide for such monitoring, with exceptions only for emergency activities, research, or limited field evaluations under the close supervision and control of project personnel. This kind of tracking can probably be done by the people carrying out the project, and should be covered by the project budget. Institutionalization of such ongoing tracking should be a part of the project as well, to try and ensure that the host country takes on this responsibility once A.I.D. is no longer involved.

2. Impact monitoring

As with tracking, impact monitoring should be a routine part of any A.I.D. project which involves pesticide use. This may be more complex than tracking, because the costs of designing and implementing the data collection system will be much higher. Nevertheless, some kind of system to ensure detection of negative impacts on the natural environmental or human health is essential. As with tracking, it is also crucial that the importance of this kind of monitoring be conveyed to the host country, so that they will continue to be alert for potential harmful effects after A.I.D. is no longer involved. Funds should be reserved for training host country nationals to ensure that monitoring efforts are institutionalized.

Impact monitoring may be more appropriately carried out by people outside the project than by those implementing it. This is true for several reasons. First, the monitoring should go on beyond the life of the project, which will not be possible for the project staff. Second, it could become adversarial, which means that it is preferable for outsiders to be carrying it out. Third, there is substantial need for research on impacts of pesticide use. Impact monitoring may be a major source of data for such research, and there are strong arguments for connecting the two types of monitoring. In such a case the whole effort might be managed by the research team, not by those running the individual pesticide projects.

3. Research monitoring

There is a clear need for additional research and analysis on many aspects of pesticide use, as documented in both A.I.D. documents and many other sources. Very little is known, in fact, about the impacts of pesticides on target as well as non-target populations. Some pesticides are known to accumulate up the food chain, but how this affects African ecological systems is not known. Pest species build up tolerance to individual chemicals, but the ramifications of this for the choice of control strategies in any given area are also unknown. Moreover, although integrated pest management is clearly seen as a preferred strategy, not enough is known about the effectiveness of such techniques, or how to design them to work well in particular ecosystems. This is especially true in regard to the control and management of migratory pests.

Research topics on pesticides and pest management should be identified at the regional level, since the issues are presumably common to countries facing the same environmental and climatic conditions. At the same time, agendas for research and analysis must be sensitive to varying national needs and interests. Both national research institutes and regional organizations

like the INSAH crop protection project and the AGRHYMET crop protection training program should be involved in the identification of research needs in this area.

Research on pest management strategies will have to be funded through specific research projects, although some of the data collection could be supported as part of the impact monitoring efforts of individual pest management projects. The research work would presumably be carried out by national or regional research centers. This is a very good opportunity for involving people interested in "action research", a program of the French universities through which Africans can earn recognized degrees for independent on-the-job research. This could be of considerable interest to crop-protection staff in French-speaking countries like some of those affected by AELGA. This program is discussed in more detail in Chapter VI, on institutional mechanisms.

4. Problem identification

A need has been expressed for general information about pesticide use and transport, in order to be able to flag problems like those of the expired chemicals recently transported out of the Nigerien desert. One suggestion is that an international data base on pesticide use, sales, imports and exports, transport, etc., be developed in order to facilitate the identification of priorities and potential hazards.

Such a database may best be coordinated by an international agency like the FAO. The utility of such a database would depend on the willingness of many countries to contribute up-to-date information, and no one donor agency is in a position to engineer that. Moreover, it would also be a resource to which everyone should have open access, which is in keeping with the principles of other UN database development efforts.

Creation of such a database would, however, be an expensive and time-consuming process, so it should not be embarked upon without ensuring that the costs are warranted. A preliminary analysis of data needs, how the information would be used, and what it would take to create the database and keep it up to date may give some sense of whether it would be sufficiently useful to justify the costs. A.I.D.'s role in such an effort might be initially simply to launch the international discussion, and perhaps support some initial scoping work to determine what would be involved and sound out whether other countries are interested. U.S. government involvement in such a venture would involve not only A.I.D. but other agencies such as EPA and USDA as well.

D. Recommendations

1. Tracking and Impact Monitoring

All A.I.D. projects or local-currency funded activities which involve pesticide use should be tracked to ensure that safe procedures are being followed. In addition, the impacts of pesticide use on target and non-target populations should be monitored. Monitoring designs must be developed during the project design phase, as described in Chapter 3 for all other monitoring. The institutional mechanisms for the monitoring will depend on the particular project and the options available in the country; see the institutional mechanisms discussion in Chapter 6.

2. Research

Additional research is clearly needed in order to determine the impacts of pesticide use and identify better pest management strategies. The Bureau should encourage and if appropriate (e.g. at INSAH) support African efforts to prioritize pesticide and pest management research efforts. To the extent that prioritized research agendas are developed by African institutions, USAID funding in this area should follow them.

3. Problem identification

The PARTS agenda on pest management should include a focus on building international databases on pesticide use. The first step should be a relatively quick effort to answer several preliminary questions:

- What kinds of information could be of use, and to meet what needs?
- Who could be interested in using such data within the US government, in developing country governments, in other governments, in the private sector, or in international institutions?
- Whose participation should be elicited in the creation of such a database? Should it try to include all pesticide-exporting countries, all pesticide importers, only those dealing with the developing world, etc? A global database would clearly be more useful but much harder to build and maintain. In the interests of starting more simply, how could the database be limited in scope yet still be useful?
- Where would the data come from, or from whom? Would the database include private sector data on pesticide sales, and are such data likely to be available?
- What resources would be required to initiate and run such a project? Clearly the answer depends on the scale of the endeavor; it should be possible to estimate the start-up and recurrent costs of different options.
- What would be the possible or best institutional mechanisms for establishing such a database?

Developing firm answers to these questions would be a lengthy process requiring extensive international negotiations among the people whose support would be essential to making such a data system operational. However, it should be possible quickly to develop enough information to enable the Bureau to decide whether it wants to play a further role in such an effort. This might involve a few months work by a team including pesticide experts and information systems specialists, and could be done within the Bureau or by a contractor team. If done by outsiders it could require an investment between \$50,000 and \$100,000; obviously the more time (and money) devoted to it, the further the effort would go in developing answers to these questions.

4. Environmental Assessments for Pesticide Use

The PARTS project should provide support for the preparation of a Programmatic Environmental Assessment and subsequent Supplementary Environmental Assessments for the use

of pesticides in Africa Bureau projects, as has been recommended by the pesticide experts in AFR/TR/ARTS/FARA. Such assessments should provide explicit guidance to the Missions on how to design and implement pesticide monitoring programs. This will help simplify the use of pesticides in Bureau projects, while ensuring that they will be adequately monitored and that potential impacts on health or the environment will be detected early. The attention to monitoring in the PEA and SEAs will not impose any additional costs on the Bureau.

Chapter V.

NATIONAL ENVIRONMENTAL ACTION PLANS

A. Introduction

As a part of helping African countries evaluate and monitor environmental impacts of government and donor activities, the Africa Bureau is investigating the role which it and the Missions can play in developing and implementing the World Bank-initiated National Environmental Action Plans (NEAPs). This section assesses that role and suggests possible options for intervention. It begins with a brief description of the background of NEAPs, highlighting their major components and reporting on the current status of NEAPs in 20 African countries. It then makes a case for A.I.D. intervention, suggesting why NEAPs are germane to A.I.D. policy and interest and finally it outlines how the Bureau and the Missions can participate in the NEAP process.

B. Background

1. About the NEAPs

Rapid deforestation, loss of soil fertility, low agricultural productivity, disappearing biodiversity and an unmanageable urban environment have brought African countries face to face with an environmental crisis unprecedented in history. Recognizing the seriousness of the situation, the World Bank initiated a country-wide national environmental process in 1987. The goal of this process was to emphasize the link between environment and development, go beyond the sectoral approach of the past, and include broader concerns for policy and institutions into environmental planning. When it became apparent that strategy and assessment must be accompanied by action, the African Technical Environment Division (AFTEN), in collaboration with the national teams, initiated the concept of NEAPs.

A NEAP is an in-country, demand-driven process based on local participation. It provides a framework for integrating environmental considerations into a nation's economic and social development. Typically the NEAP defines a time bound plan of action focusing on environmental policy, institutional and legal reforms and new investment programs.

The NEAPs have two major characteristics that make them unique. First, they are demand-driven and participatory. Thus in Africa they have been initiated by the Africans. Through the process, thousands of people have been mobilized to review environmental issues. A cross-section of social institutions, ranging from government agencies, local communities, local NGOs and the private sector, has been involved in NEAPs. A second characteristic of NEAPs is that they approach the environment in a broad, holistic way, not only incorporating all sectors of the economy, but also considering the effect of economic, socio-cultural and institutional policies on the environment.

The concept behind NEAPs has been developed and refined in the first three countries to prepare them; Lesotho, Madagascar, and Mauritius. It resulted from interaction among the national teams, Bank staff, international consultants, and other sponsoring agencies. There are three dimensions to the NEAP concept. The NEAP approach analyzes the theoretical underpinnings of the plan, the NEAP content discusses its various components, and the NEAP process develops a plan of implementation.

2. The NEAP Approach

The NEAPs differ from other environmental planning processes in Africa in that they address all environmental concerns rather than being limited to a single sector (like the Tropical Forestry Action Plans) or focusing on a particular ecological problem (like the National Plans to Combat Desertification). They therefore depend on a careful analysis and prioritization of the key environmental issues. This involves developing a preliminary list of environmental issues, which is then discussed with representatives of the government, local communities, scientists, universities, NGOs, and others acquainted with the country, to define priority issues. Through the process of review, analysis, and consultation, priority environmental issues are selected according to: (i) the urgency of the problem; (ii) the potential irreversibility of the environmental losses if nothing is to be done; (iii) the expected benefits from addressing the issues considered; and (iv) the degree of inter-relationship between issues. In essence, the NEAP approach has two major steps: first, a comprehensive, holistic review of the country's environmental issues; and second, a selection of the issues most germane to the action plan itself.

After the priority issues have been identified, there is a need to assess the impact of environmental problems such as deforestation, erosion, loss of soil fertility and urban pollution. NEAPs need to determine their underlying causes, such as unrestrained population growth or economic, social and cultural factors. These include looking at growing population pressures on land, policies and incentives which affect natural resource management, traditional practices like land tenure, lack of information systems and technology development and economic factors such as overvalued exchange rates, distortion of agricultural producer prices, subsidization of imports, improper use of food aid and finally the political will to implement changes.

3. Content of the Plans

The NEAPs identify actions needed to deal with the country's environmental problems. This includes government action in the realm of policies, legislation, and institutional changes, as well as changes in existing donor projects and programs and a program of investment for which donor support is sought. Although each NEAP is country-specific, certain crucial elements have to be addressed in every action plan. These include:

- establishing environmental policy and legislation;
- establishing the institutional framework for dealing with the environment;
- building national capacity for environmental assessments;
- establishing environmental information systems;

- assessing the cost of environmental degradation and setting up simple indicators to monitor it; and
- developing human resources.

4. The NEAP Process

The NEAP process involves the development of the NEAP document, its approval by the government, and its implementation. Developing a the plan usually requires a three-tier, in-country organization. The Steering Committee looks at policy, institutional, and legal reforms, the NEAP Secretariat ensures multi-sectoral participation and coordination and the NEAP task forces focus on analytical work on selected environmental issues. Following completion by the Task Forces and Secretariat, the NEAP document goes through a government approval process, after which it is implemented. It must be emphasized that the implementation is not an end by itself. Rather, it sets in motion a process of environmental planning and decision-making that has to be maintained and institutionalized beyond the publication of the plan.

5. Current Situation of NEAPs in Africa

The NEAP initiative which began with Lesotho, Madagascar and Mauritius now includes 20 countries. The first three countries mentioned have governments that have approved the NEAP documents and are now implementing them. The second group is made up of Burkina Faso, Ghana, Rwanda and Seychelles. Although their plans have been completed, only Ghana, Rwanda and Seychelles have approved them. Neither of these four countries have yet to implement the NEAPs. Guinea and Togo have advanced in the process but not yet completed their plans and Benin, Burundi, Congo, Cote d'Ivoire, Gabon, Zimbabwe, Kenya, The Gambia, Guinea-Bissau and Uganda have just started the process.

Nigeria is somewhat of a unique case, due to its demographic situation, a relatively large economy and an administrative structure composed of federal and state governments. The World Bank has proposed a study entitled "Towards the Development of a National Environmental Action Plan," (The World Bank, 1990) and Nigeria is initiating a NEAP at both the federal and state levels.

6. Progress on the NEAPs

To date, the success of the NEAP process can be gauged by the progress in the three pioneering countries: Madagascar, Mauritius and Lesotho. The NEAPs in these countries had several features which made their implementation successful.

a. Strong political commitment

In Madagascar, the NEAP was initiated by the Prime Minister and Minister of Planning and has been supported by the entire cabinet. In Mauritius, the government appointed a National Environmental Committee (NEC) which was composed of individuals from the private and public sectors and the NGO community. The NEC prepared a set of recommendations which were made after reviewing the existing institutional and legislative structures for environmental management.

These recommendations were in turn incorporated into the NEAP, which was prepared by the Government with World Bank assistance. Finally, in Lesotho, the NEAP was initiated by the King, whose government appointed twelve ministers for the NEAP steering committee.

b. Broad-based participation

In all three countries, the NEAPs have attracted broad public participation. This has occurred at two levels: generation of environmental awareness through the media, which spread to all parts of the country; and seminars highlighting technical issues, drawing members of local NGOs, the university community and local and regional governments.⁵

c. Commitment from the international community

These three countries have benefitted substantially from the donor community, NGOs and other international institutions, which have contributed to providing both technical and financial assistance for NEAPs.

d. Policy Reform

The impact of environmental considerations on policy is one of the major characteristics of the NEAPs. For example, both in Madagascar and Lesotho, it was recognized that effective environmental management requires population control. Both countries are implementing World Bank supported population projects based on the strong statement on population control in the NEAPs.

C. The Role of A.I.D. in NEAPs

The donor community is an integral part of the NEAPs. Donors are consulted from the start, and they participate throughout the process. For this reason, donor coordination is facilitated through the NEAPs, and is an important component of their success. A.I.D., as one of the largest bilateral donors, should therefore continue to play a key role in the NEAPs. Moreover, participation in the NEAPs can work to A.I.D.'s advantage in a variety of ways.

1. Conformity with Agency and Bureau ENR Policy

NEAPs conform with both the Agency's and the Africa Bureau's sector strategy on environmental and natural resources. The Agency's policy on natural resources uses policy dialogue to help developing countries formulate national strategies for effective natural resource management, as well as providing technical assistance to help them address environmental problems and strengthen resource management skills. Furthermore, environmental legislation passed in the last few years requires U.S. government agencies to review the environmental soundness of projects funded by multilateral development banks (MDBs) as well as to encourage the MDBs to increase their funding for environmentally beneficial projects. The NEAPs are an ideal mechanism for

⁵ See the table in Appendix V.1 for detailed progress of NEAPs in 20 African countries

coordinating with the World Bank and other donors for implementing environmentally sound projects.

The NEAPs also adhere to the Africa Bureau's sector strategy in environment and natural resources. For example, both the Bureau and the NEAP process agree that loss of agricultural production, loss of biodiversity and soil erosion are the most immediate areas of concern for Africa, compounded by unprecedented population growth, unsuitable policies, weak institutions and lack of information. The Bureau strategy urges A.I.D. to work closely with the donor community to mobilize resources to address environmental problems. It emphasizes that the donor community must not only work with African colleagues to establish sound national strategies and plans, but must also integrate practices by local communities into environmental programs.

2. Access to "Cutting-Edge" Environmental Issues and Information

The NEAPs have a number of characteristics that will put A.I.D. on the cutting edge of environmental projects. First of all, they take a holistic approach to the environment. Traditionally, environmental policy has not been strategic. Both the donor community and host country governments reacted to environmental problems only after they become serious. Environmental statement procedures were subsequently developed to anticipate environmental problems associated with development, but they usually dealt with a single sector. The NEAPs, by contrast, take a proactive approach to environmental protection, integrating wider issues such as economic, social, cultural, and institutional considerations.

Second, NEAPs are demand-driven and participatory. In the past, donor organizations and host country governments imposed solutions to environmental problems from above. This "top-down" approach applied poorly conceived technocratic solutions to poorly understood problems. The NEAPs aim for an environmental policy defined through the contributions of individuals and local groups, bringing in indigenous knowledge of agriculture, natural resources, and the African environment. This has been successfully done in both Madagascar and Mauritius. In Madagascar, the NEAP process mobilized 150 specialists from various public, semi-public, and private organizations. Launching a multimedia campaign, environmental awareness was generated throughout the Malagasy society. Although participation in the first two years was concentrated in the capital city, since then, provincial administrations and local communities have also participated. In Mauritius, the Government launched an aggressive information and educational campaign on environmental protection. In 1988, it organized a technical seminar to provide a forum through which government officials met with representatives from the private sector, local and international NGOs and the donor community to exchange views on the technical soundness of the Mauritius NEAP.

Finally, NEAPs focus on integrating environmental information systems into the planning process. Lack of environmental information has presented a challenge to all of the NEAPs, and existing data have had to be restructured to make them accessible to users. So far, Madagascar, Uganda and to a lesser extent Burkina Faso and Ghana have been involved in developing Environmental Information Systems (EIS), but there must be further development so that other African countries can use them.

3. Establishment of a mechanism for environmentally sound projects

The NEAP process encourages the generation of environmentally sound investment. This means they can provide assistance to countries and Missions in the preparation of project proposals. In Lesotho, consultancies and technical assistance were provided to draft individual project proposals in various areas of the NEAP. In Madagascar and Mauritius, World Bank teams prepared comprehensive environmental investment programs which included formal proposals for all the priority actions to implement the NEAP. Regardless of the structure, this vehicle is crucial in generating environmentally sound projects. Furthermore, due to donor cooperation, this process avoids duplication of projects in any one sector while ensuring that key sectors are not left out.

4. Policy Reform

One of the priorities of the NEAPs is to focus on the underlying causes of environmental degradation. The impacts of policies to influence natural resource management, the role of traditional practices on land tenure, and other social and cultural factors, need to be extensively reviewed. Economic factors such as overvalued exchange rates, distortion of agricultural producer prices, subsidization of imports, and improper use of food aid aggravate poverty, may be reducing opportunities for efficient management of environmental resources. The NEAP process encourages policy reforms to improve environmental management. This has already met with success in Lesotho where as a result of the NEAPs, there is now recognition that limiting population growth is essential both for economic development and for environmental protection. Furthermore, sectoral plans for water, settlements, energy, and livestock management have been initiated under the NEAP. Environmental management and protection have also been explicitly accepted as major objectives in agriculture, road building, energy, mining, and other traditional sectors.

D. Options for A.I.D. Intervention

Given the reasons described above as well as interest expressed by both the Africa Bureau and the Missions, A.I.D. should consider involvement in NEAPs as a priority. Essentially, intervention can occur at two levels: Bureau and Mission.

1. Bureau Level Interventions

a. Support the Expansion of the Multidonor Secretariat

The Multidonor Secretariat (MDS) was created in August 1990 to provide donor coordination, information services and networking in support of the first year tranche of the Madagascar Environmental Action Plan. It was envisioned that over time the MDS would expand its geographic coverage to include other African countries involved in the process of designing and implementing NEAPs. The idea behind this was that the MDS would draw on the experience acquired and the donor network created through the Madagascar program, which is currently the largest and the most complex of the African NEAPs.

The MDS was created to coordinate donor activities in support of the NEAPs, encourage increased donor support, and serve as a liaison between donors and the African countries carrying out the NEAP process. It produces a very useful bimonthly newsletter which provides up-to-date information on the progress of the program and donor and NGO activities. It participates in NEAP

evaluation and appraisal Missions, and coordinates technical assistance Missions to NEAP countries. It helps mobilize donor funding for NEAP activities, and matches donor agencies interested in supporting the NEAPs to countries in need of their funds. Also, and more importantly, it assists in the training of the in-country Malagasy coordination unit for NEAP.

Currently, the MDS is planning to expand its geographic coverage to other African countries involved in the NEAP process. As it expands, the MDS will take on more staff financed by participating donors. In order to maintain close links with the NEAP countries and to represent the issues they face more clearly to the donor agencies, the MDS may in the future set up satellite "coordinating agencies" in each host country to serve as the donor liaison and to assist in the planning process of NEAPs.

A.I.D. should continue to support this expansion of the MDS, as it enables the Agency to continue to be an integral player in the design and implementation of NEAPs. Furthermore, since the MDS is currently the only forum for donor coordination, financial support and participation ensures A.I.D. leverage in the NEAP decision making and planning process. The MDS has estimated its budget for next three years at \$1,350,000.

b. Support the Club of Dublin

The Club of Dublin is conceived as an open forum through which African NEAP participants learn from each other's experiences. It is primarily an informal, non-bureaucratic network of environmental practitioners interested in the development of the NEAPs, similar to the Club of Rome or Club du Sahel (at its beginning). It consists of African technical experts and scientists from Africa with the donors playing a secondary role. The Club holds semiannual meetings at which NEAP participants come together to discuss common problems, network, establish contacts with donors and other interested participants, and provide information to countries which are new to the NEAP process.

Donor support is essential to the functioning of the Club. A.I.D. should play an active role here, because the Club provides the Agency with current information on the NEAPs as well as continued interaction with the Africans on the progress of NEAPs in their respective countries. This could be costly, but it would at least give A.I.D. a "seat at the table". The major role will be played by the World Bank Africa Technical Environment Department which is taking the lead in supporting the Club of Dublin. The Club has asked for a budget of \$6,200,000 over the next four years. The UNDP is expected to contribute \$4,200,000, with other donors being asked to contribute the remaining \$2,000,000.

c. Conduct NEAP seminars for Bureau and Mission staff

Given that NEAPs are relatively young, there is a demand for information from the within the Bureaus, from the Missions, and from other donors. This information could be simply what the NEAPs are and how the various interested players could be involved in them, or it could be more detailed covering topics like: (a) What countries a particular Mission should focus on; (b) concurrence with Bureau and Mission strategy on environment and natural resources; and (c) identification of environmentally sound projects that will meet the needs of the Missions and the host country.

Through the MDS, A.I.D. could conduct workshops and seminars for USAID Mission staff (and others, if desired) to disseminate information and facilitate discussion about the NEAPs. Such seminars could be run in Africa by the World Bank with assistance from Bureau staff. Their cost would be primarily preparation time and travel expenses for the participants. Depending on the size and length of the seminar, they might cost from \$50,000 to \$100,000 per meeting.

2. Mission Level Intervention

Missions are strongly encouraged to support the development and implementation of NEAPs in their respective countries. Such involvement could come through a number of mechanisms.

a. Pilot the NEAP process in a chosen country

One of the options Missions can undertake is to manage and steer the entire NEAP process in one chosen country, presumably a priority country for A.I.D. This is being done in Uganda, where A.I.D. is providing the majority of the funding and technical assistance for the NEAP. Specifically, A.I.D. is providing 27 months of short-term technical assistance and a \$2 million non-project assistance (NPA) cash transfer. Other sources of funding will come from project assistance and local currency counterpart funds.

This option poses two major risks. First, with A.I.D. playing such a large role, the NEAP has the danger of becoming an A.I.D. plan rather than a national one. Second, it puts the burden of responsibility for all the technical aspects on A.I.D. Since the NEAP is by definition a multidonor effort, its effective implementation hinges on the ability of donors to provide technical information in areas of their comparative advantage.

b. Provide technical assistance on specific components of NEAPs

As mentioned previously, the design of NEAPs often consists of Working Groups or Task Forces on specific areas affecting environmental planning. These can be priority areas for the country in question or can be issues general to all NEAPs. In particular, certain areas need careful attention in the planning and implementation of NEAPs, such as agriculture, biodiversity, urban and industrial pollution, population growth, land tenure, environmental information systems, environmental law, and so on. By providing technical assistance in such areas, the Missions provide expertise to the NEAPs while supporting the development of projects in their areas of priority.

c. Develop Mission NRM activities within the context of the NEAP process

Any Mission in a country where there is a NEAP in place or in process should be closely following the NEAP in order to fit Mission activities in to the priorities or mechanisms established by the country. This is essential to ensure Mission NRM strategy as well as pilot environmental projects will be in close conformity with the NEAP procedures.

- d. Identify policy reform issues that link environmental and natural resources to development

As mentioned previously, the NEAP concept includes reform on policies related to environmental issues. It has been well documented that policy reform is integral to effective environmental management. Earlier, we saw that the governments of Lesotho and Madagascar changed their population policies after the NEAPs determined the detrimental impacts of population pressure on the environment. Missions are thus encouraged to identify the policy issues that have impacts on the environment and support reforms in those areas through NPA. Ultimately, policy reform is a country-specific issue, but there some areas of reform which all Missions should consider. Some of these are:

- *Trade and industrial policy:* Pricing policies that distort market prices can have adverse effects on the environment. For example, in many developing countries, industry has been favored over agriculture, distorting agriculture's terms of trade. In consequence, subsistence farmers and laborers faced with falling real incomes find supplementary income by gathering fuelwood and other forest products, illegal logging, and poaching. This puts pressure on the environment.
- *Macroeconomic policy:* Macroeconomic policies can have tremendous impact on the environment. For example, overvalued exchange rates can reduce tradable natural resource exports, relative to non-tradable goods, reducing pressure on the domestic resource base. High interest rates imply a high cost of waiting, thus encouraging the rapid depletion of natural resources. This is however offset by the fact that a higher interest rate means a higher cost of capital which tends to reduce capital-intensive resource depletion and environmental degradation.
- *Land tenure:* Insecurity of land ownership is the one of the most import sources of policy failure in the developing world. It has been well documented that how farmers view the land greatly affects how they use it. A farmer with unclear, insecure, or short-term land tenure is more likely to "mine" the land, that is, seek maximum short term production gains through crop rotations and other practices that may degrade the biological and physical qualities of the soil.
- *Water Resources policy:* Virtually all countries, regardless of the degree of scarcity of water subsidize water for irrigation and in many cases even supply water free of charge. This leads to over irrigation with consequent salinization and waterlogging in some areas, and insufficient water in others.

Appendix 5.1
Status of NEAPS in Africa
MATRIX INDICATORS

COUNTRY	INITIATOR 1/	LAG 2/	DURATION 3/	APPROVAL DURATION 4/	NEAP STALL 5/	AUTHORITY SPONSOR 6/	STEERING COMMIT- TEE 7/	CHAIR OF STEERING COMMIT- TEE 8/	SECRETAR- IAT COMPOSI- TION 9/	LOCATION 10/	
										ADMIN.	PHYSICAL
BENIN	MRD/MP	4				MRD	Y/M	MRD	M		
BURKINA FASO	MET	0	34			MET	Y/D	ME	G	MET	MET
BURUNDI	D.E.	18+							G?		
GAMBIA	ME/WB	8				ME	Y/M	?			
GHANA	MFE	0	33	6+		MFE			G	EPC	EPC
GUINEA	MP	0	30+			MP	Y/T	MNRE	G	MP	MNRE
GUINEA BISSAU	MRD					MRD			G	MRD	MRD
LESOTHO	K	2	11	7	0/24	MP/K	Y/M	MP	M	MP	MP
MADAGAS- CAR	MP/PM	0	24	16	0	MP/PM	Y/D	P.A.	M	PM/MP	PV
MAURITIUS	MELU/WB	0	8	3	8	MHLE	Y/M	PM	M	MHLE	MHLE
RWANDA	MP/P	5	25	6+		P/MP	Y/D?	MP (D?)	G	MP	MP?
SEY- CHELLES	MP	0	18	3	5?	MP	Y/D	MP? (DG)		MP	MP?
TOGO	ME/WB	6				ME					
UGANDA	ME	2				ME	Y/M	PM	M?	ME	PV

Source: The World Bank, Environmental Division, Technical Department, Africa Region, June, 1991

COUNTRY	NATIONAL COORDINATOR 11/		1 REVIEW ONLY 2 FROM START 12/	1 REVIEW ONLY 2 FROM START 13/	USE OF LOCAL CONSULTANTS 14/	FINAL TECHNICAL REVIEW 15/	ECONOMIC CONTENT/ COST OF ENV. DEGRADATION 16/	E.I.S. 17/	EMPHASIS ON POP/ENV 1 NOT MENT. 2 MENTIONED 3 VERY IMPORTANT 18/	LAND TENURE 1 POOR 2 FAIR 3 HEAVY FOCUS 19/	TIME BOUND PLAN 20/	LEVEL OF INTEGRATION 1 POOR 2 FAIR 3 GOOD 21/
	GOV/ NONGOV/ CONS.	FULLTIME PT TIME	NGO PARTICIP UNIVS.	LOCAL COMMUN INVOLVEMENT								
BENIN	G/C	FT			YES?						NO	
BURKINA FASO	G	PT	2	1	YES?	YES	NO	YES	2	3	NO	2
BURUNDI	G	PT			NO?						NO	
GAMBIA								YES			NO	
GHANA	G	PT	1	1	YES	YES	YES	YES	2		NO	2
GUINEA	G	PT	1	1	NO	NO		NO		2	NO	
GUINEA BISSAU	G	PT									NO	
LESOTHO	G/C	PT/FT	2	2	YES	YES	NO	NO	3	2	NO	2
MADAGASCAR	G/C	FT	2	1	YES	NO	YES	YES	3	3	NO	2
MAURITIUS	G	PT	1	2	NO?	YES	YES	NO	1	1	NO	2
RWANDA	G	FT	2	2	YES	NO	NO	NO	3	2	NO	2
SEYCHELLES	G	PT	1	0?	NO?	YES	NO	NO	1	1	NO	2
TOGO											NO	
UGANDA					YES						NO	

Note: In Kenya, Nigeria, and Zimbabwe, fairly complex country exercises are expected-possibly, all will be similar to the NEAP model to be used in Nigeria.

ENDNOTES: EXPLANATION OF INDICATORS IN THE MATRIX

1. Initiator - Who made the initial request for assistance in developing an NEAP?

DE	Director of Environment
K	King
ME	Minister of Environment
MET	Minister of Environment and Tourism
MFE	Minister of Finance and Economic Planning
MHLE	Minister of Housing, Lands, and the Environment
MP	Minister of Plan
MRD	Minister of Rural Development
P	President
PM	Prime Minister
WB	World Bank

2. Lag - Number of months between when the initial request was made and when the NEAP began.

3. Duration - Number of months in NEAP preparation before a document was sent to government for approval.

4. Approval Duration - After the document was submitted to government the number of months before it was approved.

5. NEAP Stall - Number of months after approval before implementation of the NEAP began.

6. Under whose Authority/Sponsorship was the NEAP prepared?
Same acronyms used for initiator category.

7. Steering Committee:

Was there a Steering Committee?

Y = Yes

N = No

At what level were the members of the Steering Committee?

M - Ministerial level

D - Director General level

T - Technical level

8. Who was the Chairman of Steering Committee?

New acronyms to those listed above.

MNRE - Ministry of Natural Resources and Environment

P.A. - President's Advisor

9. What was the composition of the Secretariat?

G - Government members only

M - Government and Non-Government members (public and private sector, local community, NGOs, University Community)

10. The location of the Secretariat is divided into two categories:

a.) Where was the Secretariat located administratively?

EPC - Environmental Protection Council

ME - Ministry of Environment

MET - Ministry of Environment and Tourism

MHLE - Ministry of Housing, Lands and the Environment

MP - Ministry of Plan

MRD - Ministry of Rural Development

PM - Prime Minister's office

b.) Where was the Secretariat located physically?

Only new acronym is PV - Private location outside government.

11. Was the National Coordinator from government, non-government or a private consultant?

a.) G - Government

N - Non-Government

C - Consultant

b.) Was he/she full or part time?

F - Full Time

P - Part Time

12. At what stage did the NGO and University Community participate in the NEAP process?

1 - Review of NEAP document only

2 - From start

13. At what stage did the local community become involved in the NEAP process?
 - 0 - No involvement
 - 1 - Review of the NEAP document only
 - 2 - From start
14. Did the NEAP preparation involve the use of local consultants?
15. Was there a final technical review of the NEAP document before it was presented to the Government?
16. Did the NEAP economically assess the costs of environmental degradation?
17. Has an environmental information system been set up in the country?
18. How much attention is given to the population issue and its resultant environmental effects in the NEAP document?
 1. Not mentioned
 2. Mentioned
 3. Very important
19. How much attention is given to the issue of land tenure in the NEAP document?
 1. Poor
 2. Fair
 3. Heavily addressed
20. Is the Plan a Time-Bound Action Plan?
21. What is the level of integration?
 1. Poor
 2. Fair
 3. Good

Chapter VI.

INSTITUTIONAL MECHANISMS

No one institutional mechanism will be optimal for all of the evaluation or monitoring needs of Africa Bureau projects. Rather, there are many different institutions, both in the host countries and in the United States, which could play useful roles. This chapter discusses a number of these institutions, and considers the typical advantages and disadvantages of working with each them.

The viability of these institutions will, however, vary greatly from country to country. Consequently, the choice of institutional mechanisms for evaluation and monitoring must be left up to the Missions. They alone are in a position to assess the strengths and weaknesses of the institutions in their countries, and thus the best choices for projects under their jurisdiction. In most countries many different institutions will play a role; in some cases several institutions may even work together on a single project.

A. Environmental Analysis During Project Design

The above chapters on project design and non-project assistance call for a rigorous analysis of the potential environmental impacts of many activities which now receive cursory review at best. They also indicate that this analysis should be the responsibility of a full member of the team, to ensure that environmental concerns are integrated into the design and not be conducted as an "add-on". This section addresses the question of who should do that analysis.

1. A.I.D. Staff

A.I.D. Direct Hires, PSCs and FSNs now play a vital role in environmental evaluations, both in the Missions and in the REDSO offices. Because I.E.E.'s must have Direct Hire approval, having the work done in-house is more efficient than contracting for environmental evaluation. Moreover, from the Mission perspective, being able to call on the REDSO staff to carry out the environmental analysis component of the design process is cost effective, since they don't have to use their own PD&S funds to pay for REDSO staff time. However, REDSO staff are overloaded, and cannot at present pay serious attention to as many of the projects as warrant their time.

For all of these reasons, one of the simplest solutions to the need for more rigorous environmental reviews would be to hire more environmental specialists in the REDSOs. This may be difficult given the staffing limitations currently imposed on the Bureau. However, funding one or two additional PSCs or FSNs at each of the REDSOs through PARTS would ease the pressure on the Missions and reduce the need to deplete other resources for routine environmental reviews.

2. U.S. Contractors

Project design is often contracted out to consulting firms. In such cases, the simplest solution to incorporating an environmental analyst in the team may simply be to add one more slot and hire the person through the consulting firm along with the rest of the team. There are several

advantages to this approach. It allows the whole team to be recruited and managed together, rather than having different members come from different places, with different schedules. It also eliminates the need to put in a claim for REDSO staff time at scheduling conferences which may be held up to a year before the design team will be fielded. Perhaps more importantly, this mechanism makes it possible match the scope of work and qualifications of the environmental analyst to fit exactly with the needs of the project, rather than relying on a generalist REDSO analyst whose skills may not be appropriate to the task at hand. This should make it easier to guarantee that the analysis will be well suited to the project. The disadvantage, of course, from the Mission perspective, is the cost of adding an additional member to the design team, which could run as much as \$25,000.

2. Local consultants

Local consultants - as PSCs, through firms, through NGOs, or through the universities - are a valuable and under-used source of expertise for the environmental analysis component of project design. One advantage of relying on local expertise is that the people hired may be more familiar with the situation in the country than expatriates. Another is that bringing local people in at the design phase may provide a natural transition into relying on local expertise for monitoring. A third advantage is that they may cost less, especially since they are already based in the country.

There are several potential disadvantages to relying on local expertise for environmental analysis. One is that it may be hard to find highly qualified people, especially ones already familiar with the A.I.D. system. A second is that it will be easier to integrate the work of the design team intellectually if they are all working together, at the same time, under the leadership of a single team leader. This may be hard if the environmental expert is recruited, managed and scheduled locally by the Mission rather than by the contractor fielding the design team. A third disadvantage is that less Mission time is required to manage the design process if the whole team is the responsibility of a single contractor than if some individuals were brought in under separate auspices. If the Mission knows of a local expert whom they regard highly they could, of course recommend to the contractor that this person be hired by that firm for the design team; this would address all of these objections, and might be the best arrangement.

B. Monitoring

Monitoring the environmental impacts of projects, non-project assistance, or pesticide use can be carried out in many different ways. The options listed here seem to be the most promising, but this is certainly not a comprehensive list. No one option is best; what is essential is that design teams and Missions faced with developing a monitoring plan consider a wide range of options, and select the one which best suits the breadth and time frame of the monitoring required, the capabilities of host country institutions, and the budget.

1. Self-monitoring

The issue of when the team running a project can monitor its own activities has been discussed at some length in Chapter III. In general, where the purpose is to track ongoing operations for internal management purposes, or where the project staff are genuinely concerned

about environmental impacts, this may be appropriate. Where the need is to collect data for inclusion in a database being built and used by a broader research or national monitoring effort, this may also be quite satisfactory. Where the issue is long-term or potentially controversial monitoring of project impacts, however, this may not be an appropriate strategy.

2. Mission Staff

Some kinds of tracking can be and often are carried out by A.I.D. personnel. Where this involves routine efforts to ensure that the project has followed the steps or procedures set out in the PP or PAAD this may be a viable approach. However, it will only work where the monitoring is straightforward - e.g., "did the team run a training course on pesticide application and who participated?" rather than "how has the training course influenced pesticide application practices in each of the regions to which the course participants were assigned?" - because A.I.D. staff will not have time to carry out the more complex monitoring tasks themselves.

3. U.S. Contractors or NGOs

One simple approach is to bring in a second US contractor to handle monitoring. The monitoring contract would be awarded in parallel with the project contract. It could involve a pairing between the project team and the monitoring team, or the two could be independent. The advantage of this approach is that it is a straightforward mechanism which is relatively easy to follow in the A.I.D. system and would require relatively little management on A.I.D.'s part.

There are several disadvantages to using US contractors. First, outside monitoring is often called for when the monitoring must extend past the end of the A.I.D. project, in order to trace impacts which emerge later. Issuing a ten or fifteen year contract to a US firm may be difficult and unwieldy. Second, in many cases impact monitoring may not be a full-job for anyone, but could involve small yet frequent time inputs. Logistically this is difficult for US contractors who incur substantial travel expenses every time they go to the country, yet who might actually be needed for two hours a week, once a week.

4. Local Contractors

Instead of bringing in expatriate contractors to handle monitoring, A.I.D. could award this work to local contractors, again either paired with the firms carrying out the project or independently. Local contractors have the advantage of being on hand, so that they may be able to provide consistent on-going inputs with only a small time commitment. Local firms could also be in a better position than expatriates to make contacts in the country and obtain needed information. Contracting with local firms also supports the market for such services, which is generally a good thing in the view of A.I.D. and most other donors.

On the other hand, it may be no easier to award a long-term (10-15 year) contract to a local firm than to an American one, since the constraints of A.I.D.'s five-year country strategy and planning cycle will still apply. Moreover, in many countries local firms simply do not do very good work, and quality control would require a major input of Mission time to oversee them. Where this is the case, giving short assignments to local firms to test their capacity might be advisable, but awarding a very long-term contract would be a mistake. In addition, the local consulting businesses

in many African countries are in their infancy. It is not clear whether any given firm will even be in business long enough to take on long-term monitoring responsibilities.

5. Local Universities

Local universities may be logical candidates to take on research monitoring activities. Professors are trained to design and implement research projects, and therefore will be well equipped to think in terms of developing analytical frameworks, systematically gathering data, and drawing conclusions about the implications for future project design. They are likely to have graduate students who can handle some of the routine data collection and use the results for their theses or dissertations. This may also be less expensive than contractors, since university overheads tend to be lower than the private sector and students are inexpensive.

There are some disadvantages to this approach, though. On the cost side, although students are cheaper than skilled professionals, they also require much more supervision, so they may not end up saving the project money. It is also likely to be hard to monitor how funds are used in a university contract.

On the content side, university researchers are driven primarily by their own intellectual interests or academic ambitions. They may be interested in A.I.D. funding for environmental monitoring, but designing the effort will probably involve some negotiation between their research interests and the needs of the project. The greater intellectual credibility and potentially lower costs of a university do not come for free. Whereas a contractor can be hired to do exactly what the client wants, a university cannot, and some compromise may be necessary.

6. Local NGOs

In some countries local NGOs may have the capability and interest to monitor the environmental impacts of donor projects. Local groups which serve as watchdog organizations on government and donor-funded activities may be quite interested in this opportunity, because it will give them direct access to information and allow them to make their own assessments as to whether projects are harming the environment.

The advantages of working with local NGOs may be quite similar to those of working with universities. They will be interested in the work because it fits with their own agendas, not simply because it is a job; thus they will be motivated and enthusiastic. They may also be much less expensive than expatriates or even than local consultants.

There can be disadvantages, however. First, qualified NGOs may be hard to find. This kind of monitoring can require a long-term commitment, and many African NGOs may be too new and inexperienced to provide either the technical skills or the stability. Thus while working with NGOs may be interesting, it may impose a significant management burden on the Mission to ensure a quality product. Second, watchdog NGOs interested in environmental issues may not always be objective enough to take responsibility for this kind of monitoring, just as one would not contract it out to an environmental advocacy group in the United States.

7. Centralized monitoring

An approach to monitoring which may be of interest in some countries is to contract with a single organization - either local or expatriate - for all monitoring activities, or all monitoring activities within a single area like pest management. Each project requiring monitoring would include a buy-in to the general contract, which would cover design and implementation of the monitoring system.

The advantage of this strategy is that it would facilitate the development of an integrated approach to environmental monitoring for research, tracking, and impact assessment. Even if the contractor does not have explicit overall responsibility for national problem-identification monitoring, the existence of a group with a strong incentive to think in terms of integrated data systems will support national monitoring work if it comes up later on. Such an approach would also support the development of a strong group of skilled people who were well-versed in the environmental issues of the country. If there were enough work to warrant such a contract, it would address the problem of needing in-country specialists regularly but only for a short time. It could also provide an excellent opportunity for action-research of the type supported by the International Cooperative University; this is discussed further in section 9 below.

This approach would not be useful in countries without enough environmental monitoring to support such a large effort. It also would not deal with the problems of contracting for very long-term monitoring. Moreover, it would require the Mission to make a fairly significant commitment to environmental monitoring all at once, rather than allowing a more incremental approach where the Mission's commitment can evolve based on its initial experiences.

8. Government

A strong case can be made that ultimately environmental monitoring should be the responsibility of the host country government, not A.I.D. It is, after all, their country, and most harm to the environment will hurt the more than anyone else. This suggests that in one way or another the host government should take responsibility for many types of environmental monitoring. This is particularly true for NPA, where taking on monitoring responsibilities is just one part of assuming overall responsibility for environmental protection.

Supporting government agencies to implement project, NPA, or national monitoring has obvious advantages. It will be an effective way to build such capacity, so that the monitoring effort can be institutionalized. It could help develop a sense of responsibility for environmental impacts within the government, and encourage them to develop their own standards and criteria. In the long run, the only way for environmental controls to be internalized in the country will be if the government sees both the regulations and their enforcement as their own responsibility; this could be a way to inculcate such an ethos.

On the other hand, supporting the government to take on this responsibility has disadvantages. Many African governments will not have the institutional capability or personnel to do effective environmental monitoring. While A.I.D. can support expenses like equipment or technical assistance, it will be hard pressed to fund the ongoing personnel expenses over the period of time required. Government personnel are usually overcommitted, and often give their time to the donor projects which offer the most resources or personal benefits. This pits donors against each other when their projects rely on civil servants to do the work. Moreover, civil servants are

typically hampered by bureaucratic and administrative constraints which can be bypassed by non-governmental or private monitoring organizations.

Building the institutional capability for governments to monitor the environment would be a project in itself, which would probably require an expatriate firm to provide management and training services. While it might be a useful institutional development activity in the long run, it would not be an efficient way to monitor in the short run. Thus there will be trade-offs between committing relatively few resources to getting the projects monitored, and committing much more to build the capability for government agencies to monitor in the future.

9. International Cooperative University

The International Cooperative University is a Paris-based open university oriented primarily towards enabling people from developing countries to study and learn about rural development through action research. It is run through a set of regional networks, including a European network of some twenty French universities and colleges working with students in Africa. The university runs some seminars, but students learn primarily through independent research projects focused on their own professional work.

The ICU works through a network of country-based groups. A country must have at least twenty registered students to participate. Each student is part of a group, and works under the supervision of a director of studies who provides academic advice. The student groups meet every two weeks, and the students present and discuss their work with each other. These groups are often composed of students all employed by the same agency, which may provide some funding for their activities.

Students are expected to follow a clearly set out series of steps in developing research projects and carrying them out. They work with their director of studies in doing this, and must produce regular written work to chronicle their progress. They are strongly encouraged to use their colleagues, professional contacts, local universities or libraries, and anyone else as resources in carrying out their work; part of the learning process involves figuring out how to get information, ideas, and guidance.

The ICU awards degrees at the certificate, diploma, master, and doctorate levels, upon completion of the required number of credits and thesis work. To determine the awarding of degrees, the student's work is reviewed by a jury comprised of people affiliated either with the ICU or with other universities in its network.

Participation in the ICU may be a useful strategy for involving project staff or civil servants in environmental monitoring. Because students design their own programs, their work will clearly be closely related to their professional experiences and interests, so ICU studies are likely to strengthen their professional capabilities more than other training courses. At the same time, because they can get a degree at the end, they may be considerably more motivated to do the work than people typical trainees. Because this is an independent study program, it will only attract the most motivated students; this is not for everyone. Yet for people who are interested, the environmental monitoring needs of A.I.D. projects may provide an excellent framework for doing independent study projects.

This would obviously not be a cheap source of efficient project monitoring for A.I.D. The monitoring labor might be free, but to make it effective the higher-level project staff would probably have to serve as study directors for the students enrolled in ICU, and would have to allow time and perhaps some resources for their work. On the other hand, it could be a very effective motivating and training tool; the resources devoted to it would produce not only a monitoring program, but a group of trained, motivated, diplomaed employees.

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