

Annex F:

Programmatic Environmental Assessment (PEAs)

F.1 What Are Programmatic Assessments?

Programmatic Approaches

Occasionally it is necessary and/or helpful to carry out an environmental assessment a sector (agriculture, road construction, etc.) or a larger program that will eventually contain several projects or sub-grants. Such an overall assessment is known as a Programmatic Environmental Assessment (PEA) and can serve as a general assessment of a sector or provide the basis for future environmental reviews, at either project or sub-project level.

The basis for PEAs lies in Section 216.6(d) of Reg. 216:

(d) PROGRAM ASSESSMENT: Program Assessments may be appropriate in order to:

- assess the environmental effects of a number of individual actions and their cumulative environmental impact in a given country or geographic area, or*
- the environmental impacts that are generic or common to a class of agency actions, or*
- other activities which are not country-specific.*

In these cases, a single, programmatic assessment will be prepared in A.I.D./Washington and circulated to appropriate overseas Missions, host governments, and to interested parties within the United States. To the extent practicable, the form and content of the Programmatic Environmental Assessment will be the same as for project Assessments. Subsequent Environmental Assessments on major individual actions will only be necessary where such follow-on or subsequent activities may have significant environmental impacts on specific countries where such impacts have not been adequately evaluated in the Programmatic Environmental Assessment. Other programmatic evaluations of classes of actions may be conducted in an effort to establish additional categorical exclusions or design standards or criteria for such classes that will eliminate or minimize adverse effects of such actions, enhance the environmental effect of such action or reduce the amount of paperwork or time involved in these procedures. Programmatic evaluations conducted for the purpose of establishing additional categorical exclusions under '216.2(c) or design considerations that will eliminate significant effects for classes of action shall be made available for public comment before the categorical exclusions or design standards or criteria are adopted by A.I.D. Notice of the availability of such document shall be published in the Federal Register. Additional categorical exclusions shall be adopted by A.I.D. upon the approval of the Administrator and design consideration in accordance with usual agency procedures.

The concept of sectoral or programmatic assessment is not new to the donor community, although USAID was the first to apply it to international development assistance. For example, the World Bank has published an outline of the essential elements of such assessments (*World Bank EA Sourcebook* Update No. 4, October 1993), which contains much basic information on the process. The description of a PEA in subsequent sections of this Annex draws heavily on the World Bank concept of sectoral assessment.

The *World Bank EA Sourcebook* Update No. 15, June 1996, provides guidance on Regional Environmental Assessment. Regional EA in the Bank's terminology, differs from other forms of EA because of its distinct emphasis on the spatial setting, but is closely allied to Sectoral EA. The term Strategic Environmental Assessment (SEA) has gained favor as a concept to refer generically to sectoral, programmatic, policy, or regional EA. While there is considerable debate about the use of various terms, all these terms, in general, refer to forms of EA that are broader than a project-specific EA. *The International Study of Effectiveness of Environmental Assessment, Strategic Environmental Assessment*, Ministry of Housing, Spatial Planning and the Environment, Publication #53 (Sadler and Verheem, 1996) provides a comprehensive review of SEA.

Advantages of a Programmatic Approach

The following advantages of PEAs are worth highlighting:

- Sectoral EAs can prevent serious environmental impacts through analysis of sector policies and investment strategies, before major decisions are made.
- They can assist in forming a long-term view of the sector and can increase the transparency of the sectoral planning process (i.e., show the reasoning behind development plans), thereby decreasing the opportunities for purely political decisions that might be environmentally harmful.
- They are suitable for analysis of institutional, legal, and regulatory aspects related to the sector, and for making comprehensive and realistic recommendations regarding, for example, environmental standards, guidelines, law enforcement, and training, thus reducing the need for similar analysis in later EA work.
- They provide opportunities to consider alternative policies, plans, strategies or project types, taking into account their costs and benefits, particularly the environmental and social costs that are often ignored in least-cost project planning.
- PEAs help to alter or eliminate environmentally unsound investment alternatives at an early stage, thus reducing overall negative environmental impacts, while also eliminating the need for project-specific EAs for all these alternatives.
- They are well-suited to consider cumulative impacts of multiple ongoing and planned investments within a sector, as well as impacts from existing policies and policy changes.
- They are valuable for collecting and organizing environmental data into usable information and, in the process, identifying data gaps and needs at an early stage, and for outlining methods, schedules, and responsibilities for data collection and management during program or project implementation.
- They allow for comprehensive planning of general sector-wide mitigation, management, and monitoring measures, and for identifying broad institutional, resource, and technological needs at an early stage.
- They provide a basis for collaboration and coordination across sectors, and help to avoid duplication of efforts and policy contradictions between sector agencies and ministries.
- They may strengthen preparation and implementation of sub-projects by recommending criteria for environmental analysis and review, and standards and guidelines for project implementation.

F.2 When Is a PEA Approach Appropriate?

When Are PEAs Recommended instead of EAs?

An Environmental Assessment (EA) or Programmatic Environmental Assessment (PEA), in USAID's procedures, is a document that is typically drawn up for actions that normally have a significant (adverse) effect on the environment. (If actions have a significant effect on the United States, the global environment, or areas outside the jurisdiction of a nation, an Environmental Impact Statement is prepared.)

PEAs assess the environmental effects of multiple actions and their environmental impact in a given country or geographic area in order to determine the additive, synergistic, cumulative effects of discrete activities in a development context (for example, multi-donor efforts in a particular region of a country). They may also be applied when the environmental impacts are generic or common to a class of actions, or to other activities which are not country-specific.

The PEA can serve as a reference document from which Supplemental or individual Environmental Assessments, which can be done more efficiently or with a better foundation because of the PEA, are spawned, typically called tiering. For example, the *USAID PEA for Locust and Grasshopper Control in Africa and Asia* is a classic application, from which 20 subsequent country Supplemental EAs have been tiered.

If a positive determination under USAID regulations is made with the resulting legal requirement for an EA, there is no reason to require a PEA, especially if it is likely to call for Supplemental EAs, unless such an approach makes sense. It may be more efficient to do a first EA and use it as a model for others, thus having saved at least one EA process in this way. Even better is to do one PEA and have it result in a process of environmental documentation that is simpler than the EA. When PVOs have similar activities they might want to do a PEA together with the Mission and cover broadly their common issue activity types. However, no PEA should be done without close Mission interaction and agreement about its purposes.

Based on the processes, types of impacts and recommendations made in the PEA with respect to mitigative measures and monitoring, the specific conditions appropriate to a particular setting and activity would be identified in subsequent, activity or geographic-specific IEEs. The PVOs would commit themselves to the set of conditions laid out in the IEE.

Criteria for Choosing PEA

Three situations may trigger PEA work:

The first type of situation is development of a portfolio in one particular sector (e.g., agriculture) or where there is a series of independent projects in a given sector. Types of projects in this first context may include:

- a national or sub-national sector program,
- a series of projects in the same sector,
- a large project with sectoral implications,
- a sectoral intermediate credit operation, or
- a sectoral investment operation.

The second situation would be a case where a PEA is prepared to complement the planning process. These PEAs may be triggered by USAID when a broad set of issues lies beyond the immediate purview of a project.

In the third situation, a series of issues or interventions are expected to proceed in parallel with a particular project. This PEA approach may be appropriate, for example, in sectors with a reputation for widespread and well-known environmental damage, e.g., the livestock sector or water supply efforts, where previous water drilling has led to desertification. Although the particular project supported by USAID may not create any

significant additional problems, you may want the kind of information provided by a PEA to justify program design options.

The following questions will help identify when a sectoral approach may be particularly appropriate and useful in a project or program where Reg. 216 applies. If the answer to the following question is positive, PEA should be seriously considered:

- Is the sponsor considering any activity in a sector with significant environmental issues?
- If the answer to the next three questions is also positive, a PEA is highly recommended:
- Are there major existing environmental problems associated with the sector, and/or sector-wide potential environmental impacts resulting from the proposed program or series of projects?
- Is there a clear potential for significant environmental improvement or avoidance of major problems in the sector?
- Are there clear policy, regulatory, and/or institutional weaknesses having to do with environmental management in the sector?

In addition, some conditions increase the potential value of PEAs but are not sufficient or completely necessary requirements:

- Is the program or project still at an early planning stage or at a new major investment phase, where important strategic decisions have not yet been made?
- Are conditions in the sector relatively stable and predictable (rather than changing rapidly and unpredictably) allowing for a medium to long-term planning horizon and allowing a better chance of gaining long-term value from the PEA?
- Are the implementors likely to give weight to the findings and recommendations?

F.3 PEAs in Operation

What Should Be in a PEA?

These sections are illustrative, not required. (See sample table of contents in this Annex).

Section 1. Project Description

The nature and objectives of the program, plan, series of projects or other context to which the PEA is attached should be described, and the main environmental issues associated with the sector and these programs identified.

Section 2. Baseline Data/Affected Environment

This section should describe and evaluate the sector's current environmental situation. Where a project-specific EA would describe conditions such as ambient air and water quality or existing impacts from pollution around a proposed project site, the PEA should concentrate on the issues and problems that are typical of the sector as a whole. For example, occupational health may be a concern across enterprises within a specific industry; seepage of heavy metals into streams and groundwater may be a recurring problem in the mining sector; or deforestation may result from activities in the agriculture sector. Another important function of the PEA is to note major data gaps.

Section 3. Environmental Impacts (or Consequences)

The single most difficult challenge in PEAs is to produce a precise impact analysis in the face of uncertainties related to final investment decisions and their individual and combined impacts. In recent years, advances have been made in the technologies for assessing cumulative impacts in relation to development plans and

programs. Means include quantitative modeling, forecasting, and various qualitative analyses. If any proposed sub-project is expected to cause particularly significant impacts, the PEA should recommend an appropriate course of action to address them, including carrying out project-specific EAs.

All cumulative effects should be considered: positive and negative, direct and indirect, long-term and short-term. Aggregate problems such as sewage discharge, acid rain, ozone depletion, and deforestation usually result from several activities, sometimes stemming predominantly from a single sector. Cumulative impacts on environmentally important and sensitive areas and assets, such as coastal zones and wetlands or inland water resources, are also important when the sector activities heavily affect these areas and/or resources.

The PEA is an appropriate instrument for considering issues related to long-term sustainable development. Specifically, the PEA may discuss how a proposed investment program may influence long-term productivity of environmental resources affected by the program.

Section 4. Analysis of Alternatives (This section is often considered earlier as Section 2.)

A PEA's major purpose is to analyze alternative design options and strategies in terms of environmental costs and benefits. For example, if a proposed agricultural program emphasizes conversion of wetlands to rice production, alternative approaches would be intensification of production in existing fields, conversion of other land types, crop rotation, etc.

All major activities under consideration, in addition to the option being considered, should be considered at this stage, whether complementary or alternative to the USAID option chosen. The other options may include investments by the private and the public sectors. A comparative analysis of alternative programs is recommended, applying indicators of environmental and social impacts and methods to evaluate and compare the indicators and, ultimately, the alternative options. If several donors are involved in the sector, the PEA should review their existing and/or planned activities and suggest ways to coordinate efforts.

The PEA can also be used to evaluate the environmental effects of sector policy alternatives. For example, changes in tax and subsidy rates on the use of natural resources may influence rates and methods of extraction. If appropriate, the analysis should conclude with a list of sector proposals, ranked according to environmental preference. The analysis of impacts and alternatives should result in an optimal investment strategy, in terms of environmental and social costs and benefits.

Section 5. Mitigation Plan (This section is sometimes combined with Section 7.)

Mitigation measures are usually detailed and technical, and therefore are normally addressed in project-specific EAs. However, if planned or existing production and process technologies in a sector are relatively uniform, the PEA could recommend broad options for eliminating, reducing to acceptable levels, or mitigating environmental impacts. This is particularly important in the case of PVO/NGO-type programs where interventions tend to follow a similar pattern of design. PEA mitigation and monitoring recommendations should draw on findings from the analysis of policy, legal, and institutional issues as well as the analysis of impacts and alternatives. USAID provision of guidelines for use in several sectors is important here. Such guidelines provide environmentally sound development principles that could reduce the amount of mitigation needed later.

A PEA is an effective tool for designing and recommending mitigation measures and monitoring that can be implemented only at the national or sectoral level for regulatory or economic reasons. Similarly, in a sector program involving multiple investments, the PEA may be better placed than project-specific EAs to consider sector-wide mitigation solutions that require economies of scale to be cost-effective. Construction of a solid waste recycling plant for an entire country is one example.

Note: When specific screening and review procedures are processed, or specifications for a set of activities are defined, these form the basis of a separate chapter. For certain types of infrastructure activities, such as roads or dams, it is important to *include recommendations for the requirements to be put into bids and tenders* for construction contractors.

Section 6. Environmental Management and Training

One of a PEA's main outputs should be an institutional plan for improving environmental management in the sector based on findings of the previous sections. The plan might recommend training existing staff, hiring

additional staff, reorganizing units or agencies, or redefining roles and responsibilities. This section might also include recommendations on policy and regulatory instruments for environmental management and enforcement in the sector. A screening process to separate sub-projects needing a project-specific EA from those not requiring further analysis should be designed, if it is not already in place.

Section 7. Environmental Monitoring Plan

The PEA should provide general guidelines for long-term, sector-wide environmental monitoring to ensure adequate implementation of investments. A monitoring plan should use the findings of the baseline data section to measure progress in mid-term review and final evaluation. The plan should also recommend measures needed to collect and organize missing data.

Section 8. Public Consultation

Public consultation is an integral part of the EA process, whether a project-specific EA or PEA is being prepared. However, since a PEA normally covers an entire sector (in a national or subnational context) and is conducted before concrete investment decisions are made, it is not always possible to consult representatives of all potentially affected people during its preparation. It is often more feasible and appropriate to carry out consultations with national NGOs (for example, for nature protection), scientific experts, relevant government agencies, and perhaps industrial and commercial interests as well. A successfully implemented consultation process will help ensure public support for the final sector program.

See the Sample Table of Contents for a Rural Road Rehabilitation PEA, at the end of this Annex.

Observations on PEA in Practice

A classic PEA is beneficial when a broad examination of a class of impacts is needed, typically in situations where previous environmental assessments have not been performed, and there is little past experience to use as a guide. The PEA serves as the document of reference, from this programmatic perspective, for subsequent Supplemental or individual Environmental Assessments, which can be done more efficiently or with a better foundation because of the PEA.

The PEA can also be useful when considering a very unusual or special ecosystem in which a variety of activities might occur and for which special considerations need to be studied, for example, a coastal zone, major wetlands ecosystem or buffer zone surrounding a protected area.

Sometimes the PEA is applied in examining the impacts of activities in a regional or geographic setting to determine the additive, synergistic, or cumulative effects of discrete activities in a development context (for example, water resource development in a state, province, or district or multi-donor efforts in a particular region of a country). This type of PEA is often referred to as a **Strategic Environmental Assessment** (see C.1.1 above). To be useful, it must consider impacts at the planning or policy level of a variety of planned and unplanned interventions undertaken by the private sector, governments, donors, etc. Thus, it typically needs to be performed or sponsored by a government that has jurisdiction over the area (or it could be an entire sector, such as power) in question.

One might call a rolled-together series of EAs in one document a PEA. Such a document could cover a set of similar activities, **if** sufficient information were known about the specific situation of each, and some processing efficiencies could be achieved. For example, if four dams with similar structural characteristics exist in the same region with similar ecosystems, one might roll the four together in one document. However, if specific characteristics were not known, then the PEA **optimally** would provide a set of generic information about dam impacts and a **procedure or process to be followed**.

The observation has been made that EAs or PEAs are better than IEEs, because they involve the host country in participation. However, there is no reason that stakeholder participation cannot occur through other levels of environmental documentation, such as an IEE. Thus, the need for public participation need not be a criterion that triggers a PEA (or an EA).

When the PEA is applied to groups of project activities in the same sector, these lessons learned merit consideration:

- PEAs are helpful when they address issues for which there is little generic information available and/or when there is substantial commonality among impacts from a project activity.
- PEAs are not *usually* useful for routine activities for which manuals of impacts and mitigative measures already exist. (*Nevertheless, there are exceptions.*)
- An EA may be needed legally for a routine activity for which manuals and the like exist, but there is no reason to require a PEA, especially if it is likely to call for Supplemental EAs. An EA of the specific intervention(s) would be as useful as, and less costly than, an ambiguous PEA that did not provide sufficient guidance on design and mitigative measures to allow future EAs to be avoided. Thus, an EA that serves as a model, or a PEA that results in simpler environmental documentation than individual EAs, is more efficient.
- Activities that are presumed to require an EA in USAID's Reg. 216, which lack reference to scale or magnitude, will need documentation, justification, or a rationale to show why an EA (or PEA) was not necessary.

Practical Considerations and Potential Obstacles

- Where USAID activities are concerned, no PEA should be considered without close Mission interaction and agreement about the purposes it will and will not serve.
- Multi-purpose/multi-sector PEAs are difficult to accomplish and should be approached carefully. They generally require a large budget. Effective PEAs for PVOs are likely to be linked to a particular sector within a delimited geographic region that has shared characteristics and other commonalities.
- PEAs should not be linked to a particular implementor, just because an element is common to all sectors. This approach does not translate into useful PEA practice. For example, you would probably not choose to do a PEA for PVO A's multiple activities. One could do a PEA more efficiently for activities of several PVOs operating within the same sector, e.g., dam and irrigation interventions of PVOs A, B and C. If the implementor is responsible for a broad set of related interventions in a sector, a PEA might be warranted for that implementor, or the PVO could have many types of interventions such that several PEAs are warranted.
- A good-quality PEA (or EA) process, from a Scope of Work through scoping, data collection, analysis, preparation, internal review, and external review typically takes up to one year. With aggressive workers and committed reviewers, six calendar months is feasible. Experience has shown that approximately six to eight person-months of effort is usually needed, with a minimum of three person-months, not counting effort for Mission Environmental Officers or Project/Results Package Managers. If document translation is required to achieve host-country participation, an additional level of effort is needed.
- PEAs should not be viewed as a convenience, but rather as a serious, analytical process that takes time to do properly. To the extent that PEAs are not necessary and are not squarely on target with respect to achieving larger purposes that can be easily and generically applied, *other forms of environmental documentation to accomplish environmentally sound and sustainable activities are to be preferred*, because they are less time-consuming, more targeted, and more useful.
- PEAs should be applied judiciously to situations in which they can be genuinely useful as a planning tool.

**Attachment to Annex F:
Sample table of contents for a PEA**

**USAID/MADAGASCAR
PROGRAMMATIC ENVIRONMENTAL ASSESSMENT
OF RURAL ROAD REHABILITATION ACTIVITIES²¹**

Table of Contents	i
List of Acronyms	vi
EXECUTIVE SUMMARY	S-1
1. INTRODUCTION	
1.1 Purpose and Need of USAID/Madagascar Rural Road Rehabilitation	
1.1.1 Purpose	1-1
1.1.2 Need for Road Rehabilitation	1-4
1.2 Objectives of PEA for Madagascar Rural Road Rehabilitation	
1.2.1 Regulatory Considerations	1-5
1.2.2 Activities Assessed	1-6
1.2.3 Relationship of this PEA to Other Environmental Documentation	1-7
1.3 PEA Scoping Process	1-8
1.4 PEA Methodology	1-9
1.5 PEA Consultation and Review	1-10
2. PROPOSED ACTION AND ALTERNATIVES	
2.1 Description of Proposed Actions	
2.1.1 CAP Road Rehabilitations	2-1
2.1.2 SAVEM Road Rehabilitations	2-3
2.2 Alternatives to Proposed Actions	2-3
2.2.1 No Action Alternative	2-4
2.2.2 Water-Borne and Rail Transport	2-5
2.2.3 Alternative Design Strategies for Road Rehabilitation	2-6
2.2.4 Linkages of Alternatives to Mission Strategic Objectives	2-9
2.3 Comparison of Alternatives	

²¹ Source: Bingham, C., E. Loken, M. Enders, S. Gupta, R. Hanchett and T. Herlehey. 1995. USAID.

2.3.1	Strategic Alternatives	2-12
2.3.2	No Action Compared to Proposed Actions	2-13
2.4	Identification of Preferred Action	2-15
3.	AFFECTED ENVIRONMENT	
3.1	Country Context	
3.1.1	Agro-Ecological Zones	3-1
3.1.2	Agriculture, Agribusiness, Livestock and Fisheries	3-2
3.1.3	Soils	3-5
3.1.4	Biodiversity	3-7
3.1.5	Status of Protected Areas and Forest Resources	3-8
3.1.6	Vegetative Cover Loss	3-9
3.1.7	Madagascar Environmental Action Plan	3-10
3.1.8	Road Infrastructure	3-10
3.2	Fianarantsoa High Potential Zone	
3.2.1	Resource Characteristics	3-12
3.2.2	Socio-Economic Characteristics	3-15
3.2.3	Road Characteristics	3-18
3.3	Mahajanga High Potential Zone	3-21
3.3.1	Resource Characteristics	3-22
3.3.2	Socio-Economic Characteristics	3-24
3.3.3	Road Characteristics	3-26
4.	REGULATORY AND INSTITUTIONAL SETTING	
4.1	Ministère de l'Aménagement du Territoire	4-1
4.2	Ministère des Travaux Publics	4-2
4.3	Génie Rural	4-4
4.4	Ministère des Transports	4-5
4.5	Regional and Local Governments	4-5
4.6	Office National de l'Environnement	4-7
4.7	Direction des Eaux et Forêts	4-10
4.8	Association Nationale pour la Gestion des Aires Protégées	4-11
4.9	CAP and SAVEM Institutional Arrangements	
4.9.1	CAP	4-14
4.9.2	SAVEM	4-17
5.	ENVIRONMENTAL CONSEQUENCES	
5.1	Impact Analysis Framework	5-1
5.2	Impacts of Road Rehabilitation Actions	

5.2.1	Geology and Soils	5-2
5.2.2	Hydrology and Water Quality	5-4
5.2.3	Vegetation	5-6
5.2.4	Wildlife	5-10
5.2.5	Parks, Reserves and Other Protected Areas	5-11
5.2.6	Agriculture	5-13
5.2.7	Population and Settlements	5-18
5.2.8	Socio-Economic Considerations	5-20
5.2.9	Health and Disease	5-21
5.2.10	Historic, Archaeological and Other Cultural Resources	5-22
5.2.11	Air Quality	5-23
5.2.12	Noise and Vibration	5-24
5.2.14	Energy and Other Resource Commitments	5-25
5.3	Impacts of No Action Alternative	5-26

6. RECOMMENDATIONS FOR ROAD REHABILITATION REVIEW MITIGATION AND MONITORING

6.1	Strategic Evaluation and Selection of Alternatives	
6.1.1	CAP Road Rehabilitation and Strategic Objective #2	6-1
6.1.2	SAVEM Road Rehabilitation and Strategic Objective #3	6-2
6.1.3	Potential for Environmental Institutional Capacity Building	6-3
6.2.	Review and Analysis Procedures	
6.2.1	Screening and Review	6-4
6.2.2	Focused Environmental Analysis	6-8
6.2.3	Supplemental Environmental Assessment	6-11
6.3	Recommendations for Development & Implementation of Mitigative Measures	
6.3.1	Standard Road Rehabilitation Mitigative Measures	6-13
6.3.2	Road Segment-Specific Mitigative Measures	6-16
6.3.3	Mitigative Measures for Indirect and Induced Impacts	6-16
6.4	Recommendations for Development & Implementation of Monitoring Procedures	
6.4.1	Standard Road Construction, Operations and Maintenance Monitoring	6-17
6.4.2	Road Segment-Specific Monitoring	6-18
6.4.3	Monitoring of Induced and Indirect Impacts	6-19
Exhibit 6.1	ENVIRONMENTAL SCREENING FORM	6.1-1

7. ENVIRONMENTAL MONITORING, EVALUATION AND MITIGATION PLAN

7.1	Introduction	7-1
7.2	General Approach	7-1
7.3	Monitoring Considerations	
7.3.1	General Monitoring Framework	7-1
7.3.2	Recommended Information Requirements	7-2
7.3.3	Potential Sources of Information	7-4
7.4	Evaluation Considerations	

7.4.1	Introduction	7-11
7.4.2	A Nexus Approach	7-11
7.5	Mitigative Considerations	7-13
7.6	Conclusions	7-16
8.	SOURCES	
8.1	Documents Consulted	8-1
8.2	Persons and Organizations Contacted	8-4
9.	LIST OF PREPARERS	9-1
10.	APPENDIX (Scoping and Other Documents)	10-1