

Environmental Assessment Sourcebook 1999

CHAPTER 1

THE ENVIRONMENTAL REVIEW PROCESS

1. The purposes of the Bank's policy and procedures for environmental assessment (EA) are to ensure that development options under consideration are environmentally sound and sustainable and that any environmental consequences are recognized early and taken into account in project design. The precise operational meaning of "sustainable" is still being clarified, but some guidelines are suggested in Annex 1-5. As concern has grown worldwide about environmental degradation and the threat it poses to human well-being and economic development, many industrial and developing nations, as well as donor agencies, have incorporated EA procedures into their decision-making. Bank EAs emphasize identifying environmental issues early in the project cycle, designing environmental improvements into projects, and avoiding, mitigating, or compensating for adverse impacts. By following the recommended EA procedures, the Bank as well as implementing agencies, designers, and borrowers are able to address environmental issues immediately thereby reducing subsequent requirements for project conditionalities and avoiding costs and delays in implementation due to unanticipated problems.

2. The Bank's EA policy is set out in Operational Directive 4.01, which incorporates the guidelines contained in Operational Directive 4.00: Annex A, dated October 31, 1989. The full text of the Environmental Assessment Operational Directive (EA OD) is provided at the end of this chapter. EA begins with screening, in which the Bank task manager (TM), in collaboration with the Regional Environment Division (RED), evaluates the project or project components according to the magnitude and sensitivity of the environmental issues raised. Screening determines the type of environmental analysis to be conducted for the project, ranging from a full EA to no further analysis. EA or other analyses are the responsibility of the borrower, but Bank staff are available to assist wherever requested, such as in determining the scope of work and developing terms of reference (TORs).

ENVIRONMENTAL REVIEW, POLICIES, AND PRINCIPLES

3. Throughout the remainder of this Sourcebook, the term "environmental review" refers to the process just described, from screening at identification through evaluation after the last disbursement, or after implementation is complete. Environmental review may entail preparation of a full EA, a more limited environmental analysis, or no further analysis at all, depending on the results of screening.

4. The terms "environmental assessment" or "EA" identify the more intensive examination which is required for lending operations that have diverse and significant environmental impacts. Formal EAs should cover the topics listed in Annex B to the EA OD, including project description, baseline data, environmental impacts, analysis of alternatives, mitigation plan, environmental management and training requirements, monitoring plan, interagency coordination, and consultation with affected communities and local nongovernmental organizations (NGOs).

5. Environmental review is required for all Bank loans and credits except sectoral adjustment loans and structural adjustment loans. Sector investment projects and the investment component of hybrid loans and credits are subject to the environmental review requirement. "Bank" in this instance refers to the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA); however, the International Finance Corporation of the World Bank (IFC) has developed similar environmental review procedures appropriate to the nature of its investment operations.

6. EA is a flexible process, designed to suit the entire range of Bank projects and the different circumstances of its borrowing countries. There is no fixed inventory of issues to be examined in any particular EA;

instead, the Bank's procedure relies on screening, environmental reconnaissance, and discussions between Bank and borrower to identify the critical issues and to establish the scope of the EA. The EA OD also calls for interagency coordination and consultation with affected groups and local (NGOs) at an early stage to ensure that all significant environmental issues are covered.

7. "Environment" is broadly defined by the Bank as "the natural and social conditions surrounding all...mankind, and including future generations" (as amplified in Operational Manual Statement [OMS] 2.36, para 3). The EA OD reflects this scope in setting procedure for evaluating impacts on health, cultural property, and indigenous peoples as well as on the natural environment. Sociocultural effects of projects, such as new land settlement, involuntary resettlement and induced development are also to be included in the environmental review.

8. The Bank directive integrates EA or other environmental analysis into project preparation, including project selection, siting, and design decisions. In most cases, an EA should form part of the overall feasibility study. This facilitates incorporation of the findings into selection of sites and technology, designs and implementation plans. For projects which would have major environmental impacts, the Bank recommends that the borrower retain independent experts not affiliated with the project preparation or feasibility study team to conduct the EA. However, specialists responsible for the EA as a separate task should work closely with the feasibility and design team.

9. EAs provide numerous opportunities for coordinating environmental work in the country, and should be linked to other environmental strategies, action plans, and free-standing projects. EA provides a formal mechanism for interagency coordination and for addressing the concerns of affected groups and local NGOs. EA can help strengthen environmental management capability in the country and Bank staff should take advantage of opportunities to use it for that purpose.

ENVIRONMENTAL REVIEW AND THE PROJECT CYCLE

Overall Relationship to the Project Cycle

10. The Bank's environmental review is intimately linked to the project cycle. Environmental review begins with screening at the time of project identification. Scoping and preparation of the EA occur in tandem with or as integral parts of the prefeasibility and feasibility studies. The final EA is sent to the Bank by the Borrower prior to appraisal. If the EA is satisfactory to both borrower and the Bank, it forms the basis for the RED's decision on environmental clearance and the environmental condition to be negotiated with the borrower, some or all of which are incorporated into the loan agreement. The EA may be adequate for the purposes of appraisal, but the Bank review may reveal needs for additional analyses before clearance can be given and negotiations undertaken. Supervision includes monitoring the project's environmental performance and compliance with relevant conditions agreed on between the Bank and the borrower. After implementation is complete, the Project Completion Report (PCR) includes evaluation of both the impacts that actually occurred and the effectiveness of mitigation measures. The Operations Evaluation Department (OED) again audits selected projects possibly some years after the PCR. Screening

11. Environmental screening is the responsibility of the TM, with advice and assistance from the RED. An essential part of screening is to identify which aspects of a project are not environmentally significant and which therefore can prudently be dropped from further consideration. Its purposes are to ensure that the appropriate amount of attention is devoted to the environmental aspects of the proposed project from the very outset of the project cycle, to identify as much as possible the key environmental issues, and to determine the type of environmental analysis which is needed so that those issues, and others which may arise, can be addressed effectively in project planning, design, and appraisal.

12 Screening is carried out at the time of identification. Projects are assigned to one of four categories on the basis of the nature, magnitude and sensitivity of the environmental issues, and so designated in the Initial Executive Project Summary (IEPS).

Category A: A full EA is required, as the project may have diverse and significant environmental impacts.

Category B: Although a full EA is not required, environmental analysis is appropriate, as the project may have specific environmental impacts.

Category C: Environmental analysis is normally unnecessary, as the project is unlikely to have significant environmental impacts.

13. Annex E of the EA OD lists the types of projects or components which commonly fall into each category. Certain types of projects almost always fall into a particular category -- thermal and hydropower development, for example. In other project types, the category depends on scale and on other factors such as the status of environmental management capability in the country. Large-scale irrigation and drainage projects are usually Category A, whereas small-scale projects of the same type may fall into Category B. Category B projects are a diverse group, and the scope of the environmental analysis may vary from a detailed study of certain components that is almost as complex as that for an "A" project, to a routine check that project design conforms to applicable standards. Category C projects may not be entirely devoid of environmental impacts; in a health project, for example, the design may have to provide for disposal of medical wastes.

14. Other outputs of the screening process are the key environmental issues, the type of environmental analysis recommended, and a preliminary schedule for conducting that analysis. This information is incorporated into the IEPS and discussed at the IEPS meeting. The meeting results in decisions regarding type, timing, and major issues for the environmental review, unless those decisions have to be deferred pending receipt of additional information. It is helpful in reviewing the environmental information to include a map in the IEPS showing the geographical location of the proposed project.

15. Results of screening are also reported to the Bank's executive directors in the Monthly Operational Summary (MOS). Overview sheets have been designed to record the information necessary for preparing the MOS (see Annex F). In addition to basic data on the project and a description of its principal components, the sheets record the project category (A, B, or C), the major environmental issues, proposed actions (such as special studies to be conducted, environmental components to be added, other environmental work to be done in the sector), the projected date for completion of the environmental assessment or other analysis, and a report on the current status of that analysis. The TM prepares the draft overview sheet, which is then reviewed by the RED. Once any revisions are agreed and made, the overview sheet is cleared by the Sector Operations Division (SOD) or Country Operations Division chief (COD), signed by the RED chief, and forwarded to be processed for the next MOS. The complete overview sheet appears in the MOS, for Category A projects; only header information is shown for Category B. Overview sheet information is updated whenever the Executive Project Summary (EPS) is revised, whenever the project category is changed (for instance, because a component with significant impacts is deleted) or whenever there are other significant changes in the information on the sheet. Overview sheets are made final at the Final Executive Project Summary (FEPS) stage.

16. In some cases, screening requires reconnaissance by Bank environmental specialists or consultants in order to develop a full understanding of the pertinent environmental issues and the items which need to be included in any further environmental analysis. Where site visits are necessary, as is normally the case in sensitive areas or with complex environmental issues, REDs assist the TM in preparing terms of reference (TORs) for the mission. Often a product of this mission is a draft of the TORs for the EA or other environmental analysis. Annex 1-2 contains sample TORs for a reconnaissance mission.

17. It is good practice for the TM to keep the borrower informed of the initial results of the Bank's screening. The EA OD specifies that the Bank should review the results with the borrower, especially with regard to the type of environmental review required and its general scope, schedule, and implementing arrangements.

Preparing for an Environmental Assessment

18. It is the borrower's responsibility to prepare TORs for the EA or other analysis and to obtain the necessary experts to carry it out. The Bank is available to assist the borrower as necessary. The task of determining the scope of the EA is critical, and is therefore one in which the Bank normally participates. It is important not only to cover the environmental issues known at the inception of the study, but also to allow breadth and flexibility so that new issues can be identified and, if significant, addressed. However, it is also important to frame the investigation so that time and resources are concentrated in the areas where potential impacts are likely to be found. There are many examples of EAs in which massive amounts of money and effort were expended in collecting and reporting data on every aspect of the environment and producing voluminous reports in which there was much insignificant and irrelevant information than there were findings of significance. The Bank intends that EAs useful to decision-makers in the country and to Bank staff in determining whether or not to proceed with a given project and how to implement the project efficiently. This means that the work must be focused on the issues which are critical to such decisions.

19. In determining the scope of an EA, it is useful to consult with sources besides the borrower, the implementing agency or organization, and the technical experts. In addition, other government agencies can provide valuable perspective. They often have special information about the region and proposed site(s) of the project, and may be able to identify potential intersectoral impacts which should be examined. Consequently, the EA OD recommends that an interagency meeting be held soon after the decision is made to prepare an EA, and that at least one more be held when the EA is completed and submitted for review by the government. At the initial meeting, participants should agree on arrangements for ongoing coordination.

20. The concerns of communities affected by the project and of local nongovernmental organizations (NGOs) with environmental interests also should be covered in the EA. These groups can provide useful information for the EA; sometimes they are the only source of detailed knowledge about the local study area. Chapter 7 provides guidance for discussions on obtaining the informed views of affected communities and for involving them and local NGOs in EA (see para 51).

21. An EA may already have been developed under official procedures of the country or a co-donor to the project. Such EAs should be examined and where elements appear to be missing or inadequate, Bank TMs may call for selective and enhancing studies. Where the Bank and another donor are co-financing a project, TMs should clarify at the beginning which EA procedures of the borrower, Bank or co-donor will be used to ensure that EA OD requirements are met.

22. TMs, assisted as necessary by RED staff, should review the detailed TORs before the EA begins, paying particular attention to the provisions for interagency coordination and community involvement and to the design of baseline data collection programs. The latter are often the most expensive aspect of EA, and borrowers should seek the advice of experts in design of environmental or sociological data collection programs to avoid three pitfalls:

- (a) collecting data that are not relevant to the decisions to be made;
- (b) sampling the correct parameters but timing the observations incorrectly or making an insufficient number of observations for an acceptable representation of the phenomena being studied; and
- (c) omitting key parameters from the program. Avoiding these pitfalls at the outset minimizes the risk of reaching the end of a program, which might extend over an entire year or more, and discovering that the expended time and money have been wasted. Annex 1-3 contains a sample of a "generic TOR" which can be used in preparing project-specific ones.

23. The TM should also review the EA implementation schedule with the borrower, to determine whether it is consistent with key decision points in project preparation and provides for adequate integration of findings into feasibility studies and designs. The Bank can also advise borrowers about obtaining consultants and funding for EA, as discussed later in this chapter (paras 58-71).

Conducting the Environmental Assessment

24. Carrying out the actual EA is the borrower's responsibility. The government or project sponsor arranges for the EA; they often select consultants or an institution to conduct the analyses. When it is necessary to use international experts to supply skills not available in the borrowing country, the Bank encourages involvement of local consultants as well, in order to take advantage of local knowledge and to strengthen their capability for future EA work.

25. EA is most effective when even preliminary findings are made available early in the preparation process. At that time, alternatives which might be desirable from an environmental viewpoint (sites, technologies, etc.) can be considered realistically, and implementation and operating plans can be designed to respond to critical environmental issues in the most cost-effective manner. Later on, making a major design change, selecting an alternative proposal, or deciding not to proceed at all with a project can become very expensive. Even more costly are delays in implementation of a project because of environmental issues which were not considered during design. Consequently, integration between EA and feasibility studies and design work is essential. (See Chapter 7 for further discussion of dissemination of EA findings.)

26. The EA implementation plan should provide for frequent coordination meetings between EA and feasibility study teams to exchange information on environmental issues and the responses they require. Preliminary drafts of the key sections of the EA and working papers on specific issues are also useful modes of communication between the teams, especially when key decisions are made as preparation proceeds. Most successful EAs have thorough mid-term reviews.

27. The TM should agree with the borrower on which drafts, if any, the Bank wishes to see, and when. At a minimum, however, the TM should review a final draft, with RED assistance, in order to ascertain that the issues of importance to the Bank have been addressed, to obtain any clarification needed, and to provide other comments to the borrower in the interest of having information on all the critical environmental issues ready before appraisal. Since, in practice, some final EAs may be available only shortly before appraisal, preliminary review at an appropriate interim stage (for example, when the significant environmental issues are all identified and mitigating measures described) is highly desirable as well. This will ensure that the scope of the EA is correct, that communication between designers and the EA team is occurring, and that changes are actually being made in the project to address environmental concerns. In general, most major concerns become known within the first few months; the remainder of the EA period focuses on mitigating measures.

28. The EA schedule must specify submission of the final EA report to the Bank for detailed examination prior to the start of project appraisal. Annex B of the EA OD is a sample report outline. As general guidance, the main text of the report should not exceed 100 pages. The report should provide an Executive Summary highlighting the significant findings and recommended actions, in order of importance, in relatively non-technical language and not more than 20 pages in length. More detailed information, such as summaries of baseline data, model results, records of community involvement activities and reports of special studies, should be placed in a separate volume as a technical annex to the main report.

29. The Bank recommends that interim EAs and related studies be released to interested agencies and to affected communities, and to NGOs involved in project preparation. It encourages member countries to prepare EAs on this basis. However, as the EA is the property of the borrower, public release of the document can only be made with the borrower's consent.

Environmental Assessment Review and Project Appraisal

30. The borrower should review the EA to ensure that the consultants or agency staff followed the TORs and met both Bank and country requirements. The task manager (TM), assisted by RED staff, should also review the adequacy of the EA report, checking especially the following items: Were the TORs followed? Are the items required by the EA OD included? Is the Executive Summary adequate? Decision-makers may

read only the summary, therefore it must present the significant impacts (in order of importance), clarifying which are unavoidable and which are irreversible; the measures which can be taken to mitigate them; the cumulative effect of impacts; and the requirements for monitoring and supervision.. Are recommendations clearly stated in the Executive Summary?. Is the project outline description complete, insofar as the aspects which can affect the environment are concerned?. Are project alternatives described?. Is the baseline study section in the main report concise and useful to readers who are not specialists in the scientific disciplines covered?. Does the section give an overall picture of present conditions and trends, and include ongoing and proposed development activities in the study area? Does it provide comments on the quality of the data and the completeness of the database?. Is there consideration of probability in the section in which impacts are predicted and evaluated? Are potential impacts mentioned that were expected a priori but not found? Are significant impacts analyzed in more detail than less significant ones? Is sufficient justification provided for dropping topics from further consideration?. Do mitigating measures both control adverse impacts and enhance project benefits? Are the institutional arrangements for implementing the measures defined? Are the costs of implementing all its recommendations adequately budgeted in the cost tables?. Where monitoring programs are described, are the reasons for and costs of the monitoring activities covered? Is there a description of the institutional arrangements for carrying out the work, evaluating the results, and initiating any necessary action to limit adverse impacts disclosed by monitoring?. Will the project be in compliance with Bank directives and policies on environmental matters, such as involuntary resettlement properties and wildlands?. Are proposals for institutional strengthening and training adequate?. Is there documentation of community involvement, including an overview of the issues raised and their disposition?. In general, is the report free of jargon, and are technical terms defined where they occur or in a glossary?. Where existing databases, planning studies, other EAs, scientific papers, etc., are used as information sources, are the references given?

31. Bank staff review in detail the EA findings and recommendations and include in the Final Executive Project Summary (FEPS) a summary of the EA status, the major environmental issues, and how those issues have been or will be addressed. It notes any proposed environmental conditionalities.

32. The appraisal mission reviews the EA with the borrower, resolves any remaining environmental questions, assesses the capacity of country institutions to implement EA recommendations, determines whether the EA findings have been properly addressed during project preparation, and discusses environmental conditionalities to the loan agreements. The Staff Appraisal Report (SAR) and President's Report (PR) contain summaries of the EA and its main findings. An annex to the SAR should provide a more complete summary, including (but not limited to): baseline conditions; alternatives considered; significant impacts and preventive, mitigative or compensatory actions; capability of environmental institutions and steps to strengthen them; environmental monitoring arrangements; and consultations with affected groups and local NGOs. Any necessary changes in country or agency environmental policy should also be stated in the SAR.

33. Based on the information presented in the SAR and the EA, the RED chief issues formal environmental clearance for the project. Clearance is a necessary prerequisite to the Regional Vice President's authorization to begin negotiations. In the negotiations themselves, the issues and actions critical to environmental soundness and sustainability in the project are discussed, and appropriate covenants are incorporated into loan or credit documents.

Implementation and Supervision

34. EA recommendations provide the basis for supervising the environmental aspects of project implementation. The borrower is obliged to implement measures to mitigate anticipated environmental impacts, to monitor programs, to correct unanticipated impacts, and to comply with any environmental conditionalities. Procedures for startup and continuing operation of the project will normally specify these agreements, as well as measures to protect the health and safety of project staff. Proper staffing, staff training, and procurement of spare parts and equipment to support preventive, predictive and corrective maintenance are also necessary elements of implementation.

35. Supervision is an essential aspect of the Bank's environmental review, since the environmental clearance decision is based in part on the assumption that mitigating measures and other provisions will be fully implemented and will be effective in avoiding or controlling adverse impacts that might otherwise have made the project unacceptable for Bank support. Supervision is carried out through a combination of the following: reports required from the borrower on compliance with environmental conditionalities, status of mitigating measures, results of monitoring programs and other environmental aspects of the project; oversight by line agency with responsibility for the sector, and/or by environmental management, land use control, resource conservation, or permit-issuing agencies at the local, regional or national level; early warning by the borrower's staff about impending unforeseen impacts; Bank supervision missions to review implementation of environmental provisions, corrective actions taken to respond to impacts, and compliance with environmental conditionalities, including institutional strengthening components; and, site visits by Bank environmental specialists or consultants as required to supervise complex environmental components or respond to environmental problems.

36. Annex D-2 of OD 13.05: "Project Supervision," contains guidelines for supervision reports. Paragraph 36 prescribes the general content for the section on environment. In reporting on the environmental aspects of projects, Bank staff should cover critical environmental data (e.g., violations of environmental quality standards or pollutant discharge limits), descriptions of impacts observed, progress on mitigating measures, the status of monitoring programs (especially those for detecting new impacts), progress on institutional strengthening, and adherence to environmental conditionalities.

37. OD 13.05 encourages TMs to exhaust all means of persuasion before resorting to contractual remedies when the borrower is not meeting obligations of loan, guarantee or credit agreements. Such obligations include implementation of environmental components or mitigation measures and adherence to environmental conditionalities. The contractual remedies available include informal or formal suspension of disbursements under loans or credits, cancellation of all or portions of outstanding loan or credit balances, and acceleration of maturity. These are described in Articles VI and VII of "General Conditions Applicable to Development Credit Agreements" and "General Conditions Applicable to Loan and Guarantee Agreements." OD 13.40: "Suspension of Disbursements" and OD 13.50: "Cancellations" set forth guidelines and procedures to be followed in exercising these remedies. Completion and Evaluation

38. At the conclusion of a project (after the last disbursement), the PCR is prepared and submitted to the Operations Evaluation Department (OED). The borrower is responsible for submitting information that will be the basis of the report. It is important that environmental information be included so that the Bank's environmental review process can be improved as necessary, and progress toward funding of projects that are environmentally sound and sustainable can be monitored and maintained. The EA OD requires that the PCR include a description of the impacts that actually occurred, a determination for each as to whether or not it was anticipated in the EA report (if one was required), and evaluations of the effectiveness of mitigating measures and of institutional strengthening and training. Additional items useful in evaluating environmental review include:

- (a) discussion of the extent to which recommendations of the EA or other environmental analysis were followed;
- (b) an assessment of the extent to which environmental review influenced decision-making during project preparation, appraisal, negotiation and implementation;
- (c) particular problem areas to be considered in future environmental review work;
- (d) an assessment of project operation and maintenance, as it affects the environment (e.g., functioning of pollution control equipment, compliance with effluent or emission limits, status of staff training programs); and
- (e) evaluation of the benefits which resulted from environmental components of the project.

REGIONAL AND SECTORAL ENVIRONMENTAL ASSESSMENTS

39. EA procedures may be applied to development activities other than specific projects. EA can be adapted to regional or sectoral scales and used to assess impacts of sector-wide programs, multiple projects, or development policies and plans. A regional or sectoral EA can reduce the time and effort required for project-specific EAs in the same region or sector by identifying issues, initiating baseline data collection and assembling existing data in advance, or in certain cases, by eliminating the need for the project-specific environmental assessment (EA) altogether.

Regional Environmental Assessments

40. Regional EAs are desirable when a number of development activities are planned or proposed for a relatively localized geographic area, such as several projects in one watershed (see Table 1.2). They serve a number of useful purposes, for example: . definition of study areas in terms which make environmental sense -- e.g., river catchment basin, airshed, coastal zone; . selection of sustainable development patterns from alternatives in a region under development pressure (e.g., the coastal zone), or being programmed for development for the first time; . identification of cumulative impacts of different activities (e.g., the combined effects on receiving water quality of the effluents of several municipal and industrial treated wastewater discharges) and of design or implementation schedule changes and other measures to avoid or mitigate them; . identification of environmental interactions or conflicting demands on resources among projects in which the impacts of one project may reduce the benefits of another, and of measures to avoid such a result; . formulation of criteria for environmentally sustainable development in the region, including treatment of environmentally sensitive areas and resource, site selection criteria, design criteria, region-specific measures to mitigate adverse impacts, and land-use planning guidelines; . identification of monitoring data needs and definition of data collection programs to support EA and development decisions; and . examination of policy alternatives and institutional elements needed for achieving sustainable development in the region.

Sectoral Environmental Assessments

43. Like regional EAs, a sectoral EA can be used to examine the cumulative impacts of multiple projects planned in the same sector. Sectoral EAs usually address the mixture of projects proposed for the next few years. For example, in a power sector, a program including three coal-fired plants, two major hydroelectric stations, a loss reduction component, and a major institution building and training component may be studied. They may address several large Category A projects together (e.g., thermoelectric power), or a number of small projects (e.g., run-of-river hydropower) that may not warrant EAs individually. When applied in this way, sectoral EAs offer the same advantages as regional EAs and have a comparable relationship to project-specific EAs. They can, in some cases, substitute for project specific EAs, by producing guidelines and criteria for the design and implementation of projects in the sector. More often, they will result in identification of the major environmental issues in the sector and development of a data base, enabling project-specific EAs to proceed more expeditiously. (See Tables 1.3 and 1.4 for examples of sectoral EAs.)

44. A variant of this application, often called a "programmatic" EA, is the use of a sectoral EA to assess the impacts of a sector-wide program, such as locust control. These are programs that will be replicated at a variety of locations, and for which the impacts are more or less the same at any location (see Table 1.5). A programmatic EA may include among its outputs guidelines for conduct of the activity and site-specific questions which must be answered before initiating the activity.

45. The other purposes of sectoral EAs are somewhat different: . review of the environmental impacts of sector investment alternatives, e.g., centralized or decentralized wastewater treatment, expansion of existing power generation capacity versus construction of new facilities; . evaluation of the environmental effects of sector policy changes, e.g., implementation of industrial waste minimization standards, pricing water to reflect true cost of service, requiring energy conservation to offset new generating capacity needs, modification of criteria for reuse of treated effluents differentiation between new sources and existing

sources in setting air emission standards, and use of alternative fuels for fossil-fuel power and heating plants; and . assessment of

(i) requirements in the sector for environmental review, implementation of environmental management and mitigation measures, and monitoring programs,

(ii) the capacities of sectoral institutions to carry out those activities, and

(iii) needs for training, development of guidelines, or other aspects of institutional strengthening.

46. When used in these three ways, sectoral EAs provide information which can most effectively be used to plan sector strategies, investment programs, and institutional strengthening efforts. They relate to the project cycle from the beginning by contributing to the identification of projects which are consistent with sustainable development in the sector.

Table 1.2. Regional Environmental Assessment for Exploration and Production of Hydrocarbon in Coastal Alabama and Mississippi.

The purposes of this EA were to identify the effects of generic unit actions and the cumulative impacts of the issuance of permits for hydro-carbon resource development projects in a coastal area over a thirty-year period and to expedite the permit issuance process. Generic unit actions investigated included site preparation, well completion, gathering system construction, and gas treatment facility operation. Alternative means of undertaking each action were considered. Environmental effects were determined for each unit action, and these were used as the basis of the cumulative impacts analysis. The U.S. Army Corps of Engineers was lead agency; twelve other agencies participated.

In the cumulative analysis, it was assumed that the impacts would be a function of the different unit activities occurring together at various sites in the region at one time. A number of development scenarios were used in this analysis, not as predictions but rather as a means to establish limits within which future development would occur. Potential adverse impacts included loss of wetland values for sites not located in a waterway (unless the alternatives of using platforms for drilling and trestles for access were selected), removal of vegetation from pipeline rights-of-way, temporary turbidity with possible damage to oyster and sea grass beds, and loss of benthic habitat at open water drilling and pipeline sites extending for one to two years after completion of construction. Operation of facilities would contribute to air pollution. Loss of well control or oil pipeline rupture could have an extensive impact on regional ecosystems, commercial and sport fishing, and tourism. Loss of gas well control or gas pipeline rupture, could release hydrogen sulfide, a hazard to public health and safety, and to nearby plant and animal communities. The EA concluded with a number of products: . A set of impact-limiting assumptions applicable to all sites, e.g., no discharge of cuttings, drilling fluids, formation waters . A set of nine general permit conditions which, if met, development to proceed without site-specific permit application . A designated part of the study area in which no general permit would apply, requiring site-specific permit applications . A list of environmentally preferred drilling and construction techniques . A regional monitoring program.

Table 1.3. Pakistan Drainage Sector Environmental Assessment

The government of Pakistan has undertaken a 21-month sectoral EA of its national drainage program, with grant funding from Japan and leadership by the Water and Power Development Authority. Its products are to be

(a) an environmental assessment for a national drainage program which is intended to relieve widespread waterlogging and salinity problems, and

(b) a "framework concept" for the program, emphasizing institutional arrangements and procedures to facilitate the efficient planning, design, implementation, operation and maintenance of drainage schemes.

The scope of work requires the EA consultant to address engineering, environment, health, institutions, policy and programs in the entire Indus Basin, in all areas with existing and proposed irrigation and drainage facilities, and in all natural resource areas adjacent to or affected by irrigation and drainage problems and projects. The consultant must evaluate existing drainage systems, estimate future drainage requirements, and predict significant impacts, such as water quality changes in receiving waters, health hazards from irrigation or drainage systems, and deterioration of land quality resulting from irrigation. The consultant is required to identify environmentally acceptable drainage alternatives and possible mitigation and enhancement measures, including reuse of drainage water and treated effluent to minimize drainage. Institutional components of the EA are to be recommendations on linkages between environmental agencies, improved sustainability in terms of cost recovery and effective operation and maintenance, planning, construction, operation and maintenance of drainage facilities. The EA core team is composed of a team leader (planner, engineer, or economist), a drainage engineer, a resource economist, an institutional specialist, and an ecologist. Together, they account for 165 of the estimated 220 staff weeks. Other specialist, with participation ranging from two to seven staff weeks each, include a chemist, microbiologist, soil scientist, hydrogeologist, training specialist, social scientist, environmental health specialist, environmental engineer, anthropologist, irrigation engineer, and entomologist.

Table 1.4. Nigeria Multi-State Roads Project Sectoral Environmental Assessment

The Nigerian road network consists of interstate highways managed by the Federal Ministry of Works and Housing (FMWH), secondary roads managed by State Ministries of Works (SMOWs), and rural roads administered by Local Government Councils. International assistance has concentrated on rural roads in agricultural development projects and on the Federal highways. The State system includes 30,000 km of secondary roads, 10,000 km of which are paved. Many of them, constructed or upgraded in the 1970s, urgently require rehabilitation followed by an effective program of routine maintenance. The Government of Nigeria is preparing a project for a five-year program of road maintenance in selected states. It would finance repair of priority roads, paving of high-priority unsurfaced roads, routine maintenance, and an institutional development and training component. The project is being prepared by a Coordination Unit within FMWH, in collaboration with selected SMOWs. An environmental reconnaissance was conducted by a consultant and staff members from FMWH and FEPA (the Nigerian Federal Environmental Protection Agency), to provide focus to project preparation studies. It established baseline conditions in the selected states, identified the environmental issues associated with road upgrading/rehabilitation and maintenance in each state, and recommended ways in which EA could be incorporated into the project planning process. Recommendations included:

- (a) surveying and environmental screening and ranking of proposed sub-projects;
- (b) preparation by FEPA of EA guidelines for secondary roads;
- (c) preparation of EAs for sub-projects likely to have a major impact; and
- (d) review and revision of standards contract specifications to require environmental safeguards, such as re-seeding and embankment protection, and research by FMWH to propose measures to address the most important problems, such as gully erosion. The reconnaissance study also addressed the institutional capacity of FEPA, FMWH, and the SMOWs to carry out the work identified. It recommended EA training for FEPA staff, training for FMWH and SMOW design engineers in general environmental practices, in-service training for construction supervisors, and joint FEPA/FMWH workshops on specific aspects of the problem of land degradation.

Table 1.5. "Programmatic" Environmental Assessment for Locust Control Consultants prepared a programmatic EA for the United States Agency for International Development (USAID) for locust control in Africa which had the following objectives:

To describe the impacts of current and projected locust and grasshopper programs, with specific reference to pesticide use . To evaluate alternate control measures and mitigative actions which may have less adverse impacts . To provide comprehensive recommendations to ensure that environmental concerns are fully addressed in future control programs.

The 32 programmatic recommendations included preparing an inventory and mapping program of environmentally sensitive areas; prohibiting spraying in human settlements and environmentally fragile areas; selecting pesticides with the least impact on a non-target species; monitoring selected organisms, and soil and water for pesticide residues; supplementing control techniques with a strong technical assistance component; assisting countries in disposal of obsolete pesticides; testing biological control in the field; and providing training and equipment.

ALTERNATIVES TO ENVIRONMENTAL ASSESSMENT

47. Bank policy in the EA OD allows for flexibility and alternatives to EA in projects where the range of environmental issues is comparatively narrow and the issues can be understood and managed through less extensive analysis. These are typically smaller projects, not located in environmentally sensitive areas. They usually fall into Category B in the screening process. Reconnaissance and informal scoping are normally completed, followed by the design of preventive or mitigating measures. Alternatives include: . specific design criteria to safeguard the environment that will be applicable, for example, to rural electrification, rural water and sanitation, small-scale irrigation systems; . pollution control standards or effluent and emission limits for small-scale industrial plants; . "best practice" standards for certain activities, such as small-scale irrigation; . integrated pest management programs for agricultural projects which do not involve major irrigation or land development; . reliance on local government permit programs covering actions such as siting, construction, operation, pollutant discharge, and waste disposal; . preparation of environmental manuals, and institutional strengthening and training; and . application to individual projects of design criteria, guidelines, and standards developed in regional or sectoral EAs.

48. Alternative to EA allow the effort devoted to environmental considerations to be commensurate with the magnitude of potential impact. It is important to remember, however, that their acceptability in any given situation depends in part on the environment policy and regulatory structure in the country and the institutional capabilities of the borrower and the government. It will not be effective, for example, to manage the environmental impacts of small- and medium-scale industry by pollution control standards and design criteria if inspection, monitoring and enforcement functions are weak. Similarly, relying on "best practice" or integrated pest management for agricultural projects will be unsatisfactory where there is no effective agricultural extension service and inspection. In these cases, unless an institutional strengthening component with a high probability of successful implementation can be included in the project, a project-specific EA should be conducted.

INSTITUTIONAL ASPECTS OF ENVIRONMENTAL ASSESSMENT

Interagency Coordination

49. Interagency coordination is crucial to effective EA because environmental issues, in their complexity and variety, are often intersectoral and regional, even international. The authority and responsibility to deal with them (to collect information, prepare plans, approve designs, issue permits, allocate resources, develop budgets, monitor progress and regulate activities) is spread over a number of agencies at all levels of government. An EA team needs to take advantage of all major information sources and specialized knowledge. Successful implementation of EA recommendations will depend on the capabilities of the institutions involved in environmental management.

50. Interagency coordination is best achieved through interagency meetings at key points in the EA schedule. A meeting at the time of scoping is vitally important: to inform all interested agencies about the project and the intention to prepare an EA; to seek their views throughout the process; to identify issues; to

discuss any special types of analysis required, data sources and management procedures, responsibilities and schedules; and to draft TORs for the EA. At that meeting, the participants should agree on a schedule for additional meetings and other means of communication and coordination. It is also appropriate to hold a meeting when the draft final report is submitted for government review. Other meetings, such as a mid-term review, are very useful in complex EAs. Circulation of interim drafts on issues of special interest to other agencies is an effective means of interagency coordination. TMs should attend at least the initial meeting and, in any case, should ensure that the borrower includes adequate interagency coordination in the EA process.

Involvement of Affected Groups and Local NGOs

51. The EA OD states that borrowers are expected to take the views of affected groups and local NGOs fully into account in project design and implementation, and in particular during the preparation of EAs. Community involvement is important in order to understand the nature and extent of potential impacts, especially the sociocultural, and to assess the suitability and acceptability of various measures that might be used to prevent or mitigate impacts, or to compensate affected groups for unavoidable ones. Community involvement is also useful in the analysis of the distribution of project costs and benefits. Moreover, a genuine effort to provide the public with information about a project and to solicit public reactions and suggestions leads to projects that are more acceptable and more likely to be supported. There are many different ways to foster community involvement, not all of which will be appropriate in any given situation. Chapter 7 amplifies this topic and provides guidelines for successful community involvement. Strengthening Environmental Capabilities

52. The ultimate success of EA depends on strengthening environmental capability in agencies and organizations concerned with natural resource management and environmental protection. Projects with major potential impacts normally require institutional strengthening and training components, not only in the organization executing the project but in the line agency and other governmental departments or ministries as well. Involvement of these units throughout the EA process is a logical element of institutional strengthening, since it provides on-the-job training and continuity which will contribute to successful implementation of EA recommendations. It is also important to use local expertise (supported by international consultants where necessary) in preparing EAs, so that country EA capability is strengthened.

53. Because EA requires analysis of the institutional requirements for implementation of environmentally sound projects, it often recommends institutional strengthening that extends beyond the project itself. Thus, there may be linkages between EAs and sector or country environmental strategy, policy, legislation and organization. Institutional strengthening is often the most important part of project work. However, there are limitations to what can be accomplished in a single project, besides strengthening the agencies directly involved.

54. TMs should take advantage of opportunities to produce an incremental improvement in institutional capacity outside the boundaries of the project -- including line ministry staff in an EA training course for the implementing agency, for example -- but there will often be need for strengthening beyond that which can reasonably be included. TMs should ensure that any such recommendations emerging from an EA are brought to the attention of colleagues concerned with sectoral policy planning and with formulation of environmental action plans (EAPs), environmental issues papers (EIPs), and country strategy. Chapter 5 discusses the strengthening of local capabilities and institutions.

Financial Intermediary Lending

55. The Bank increasingly supports development projects through loans to financial institutions, for onlending to sub-borrowers. The sub-projects may be in a single sector, in the case of sector investment loans, or in more than one sector. The details of the sub-projects are usually not known at the time of appraisal. Under these circumstances, the EA OD makes it clear that the participating organizations must

fulfill the requirements for environmental review. Chapter 6 addresses alternative approaches for environmental reviews in financial intermediary lending.

MANAGEMENT OF ENVIRONMENTAL ASSESSMENT

Cost and Time to Prepare Environmental Assessments

56. The time required to prepare an EA, and the resulting cost, vary with the type, size and complexity of the project; the characteristics of its physical, sociocultural and institutional settings; and the amount and quality of environmental data already available. EAs need as much time as the feasibility study, of which EA is essentially a part. Therefore, EAs can take from less than six months to more than 18 months to complete, but many require about 12 months. EAs conducted according to Bank procedures do not delay projects; on the contrary, in many cases, they have shortened the total time from identification to operation, by revealing promptly environmental issues that might have halted work altogether, had they emerged at a later stage. Whether or not a particular EA actually delays a project depends largely on how well it is coordinated with feasibility studies and other preparation activities.

57. EA preparation cost rarely exceeds one percent of the total capital cost of the project and is frequently less than that. The cost of implementing mitigating measures can range from 0 to 10 percent of total project cost, with 3 to 5 percent being common. These estimates do not take into account possible cost savings that result from implementing EA recommendations that reduce or avoid the costs of environmental impacts or allow environmental objectives to be met in a more cost-effective manner. For example, project-induced epidemics of malaria or schistosomiasis, ignoring the costs in human misery, may cost millions (US\$) to bring under control, compared to the relatively minor costs of preventing them.

Sources of Financing

58. It is the borrower's responsibility to conduct and finance EAs, and in general, they are financed in the same way as feasibility studies. EAs can be considered part of project preparation costs and funded through Project Preparation Facilities, or through grants from various environmental trust funds. Other possible sources of EA funding are international NGOs and major foundations with environmental interests. In the case of financial intermediary lending, where the participating institutions have to carry out much or all of the entire environmental review, technical assistance components can be incorporated into the project to set up the procedures and organization. The routine costs thereafter become the responsibility of the participating institutions. Procurement of Consultants

59. Although there are countries where government agencies themselves are capable of preparing EAs, the usual method is for the borrower to obtain specialist consultants, just as they often do for feasibility studies. EAs require interdisciplinary analysis and are therefore prepared by teams: members work together in the field. The disciplines listed below are generally represented on the core team for any EA. . project manager: often a planner, social or natural scientist, or environmental engineer; has experience in preparing several and/or similar EAs; has management skills and sufficiently broad training and/or experience to be able to provide overall guidance and to integrate the findings of individual disciplines; . ecologist or biologist (aquatic, marine or terrestrial specializations, as appropriate); . sociologist/anthropologist: has experience with communities similar to that of the project; . geographer or geologist/hydrologist/soils scientist; and . urban or regional planner: has experience in developing countries.

If the project is in the agricultural sector, an agronomist, land-use specialist, forest scientist, or fisheries biologist, as appropriate, should be included in the core team. For industrial or energy projects, an engineer with the corresponding expertise (such as in pollution control) will be needed.

60. The core team needs to be supported by various specialists depending on the project and its setting. Table 1.6 shows some of the specialties that should be called upon.

61. EA specialists can be obtained from a variety of sources. Large international environmental consulting firms have many of the necessary disciplines on staff or in subconsultant arrangements, and can form and manage teams for any EA. There are also smaller firms that specialize in EA and manage EAs. They are more likely to need subconsultants to fill out EA teams.

62. The expertise of local consulting firms varies from country to country. Frequently a local firm will be able to provide experts (e.g., from local universities or institutions) to participate in an EA as a core team member of a specialist. It is less common, at present, to find local firms with experience and capability to carry out an EA on their own. Where such firms do exist, they should be seriously considered for EA projects. Where they do not, the Bank is committed to using the EA process to promote and develop such capabilities. Therefore, local firms should be participants in EAs being managed by international firms. This provides the local staff with on-the-job training and provides the international staff with essential local knowledge, and experience. 63. Other sources of experts include research institutions (e.g., marine institutes, tropical medicine research centers, national research institutions), colleges and universities, academies of science and technology, government agencies in the country and in other countries (loans and exchanges may be possible), and NGOs.

64. The method for selecting consultants depends on the source of funding. The Bank has published its procedures in Use of Consultants by World Bank Borrowers and The World Bank as Executing Agency: Guidelines. The borrowing country may have established procedures for obtaining consultants for studies and design projects, or for EA. Other donors may be involved and they, too, have procedures. TMs should review such procedures to ensure that they are generally consistent with the Bank's objectives.

65. When the Bank is funding the EA directly, the Guidelines should supersede the borrower's procedures. In any case, the Bank's recommended method for procuring consulting services is for the borrower to invite proposals from a short list of three to six firms or joint ventures and to follow formal procedures to select the best qualified. The REDs may be requested to assist TMs in advising the borrowers, where appropriate.

66. The Bank can assist and advise the borrower in the procurement process on request. The Bank does not ordinarily take part in preparing short lists (except in very unusual cases, which are covered in the Guidelines), evaluating proposals, or negotiating contracts. However, the Bank reviews TORs and short lists, and will guide borrowers to sources of information on available consultants. The Bank officially approves TORs, short lists and draft contracts only when it is funding the EA.

67. It is sometimes useful to prepare the short list by soliciting letters of qualifications from a longer list of consultants. This yields a short list made up of firms which are both qualified to perform the work and interested in being considered to perform it. It is not necessary when the borrower develops an adequate list without it.

68. The selection process should be based primarily on technical competence and experience. The Guidelines allow the use of price as a selection criterion only under very restricted circumstances. It is highly unlikely that such circumstances would apply to an EA, as such studies are inherently complex, with outputs that are difficult to specify completely in advance.

69. Under technical competence, the borrower should examine the following: . the experience of the firm or joint venture in EA; . the adequacy of the proposed work plan in terms of demonstrated understanding of the project, responsiveness to the TORs, and effective management of the work; and . the qualifications of the personnel to be assigned, in terms of education, training and experience; suitability to perform the duties to be assigned; language skills; successful EA experience in similar situations; experience in developing countries; and experience in the particular country or region.

70. If overseas firms are used, the REDs and the CD Environmental Coordinators can package assignments so that the experts' time and cost can be shared by several projects in the region. Packaging opportunities within one CD can reap major cost savings.

71. The Bank normally comments on the successful proposal before the borrower begins negotiations, and on the contract before it is executed. Negotiation often results in changes to the consultant's proposed work plan or EA team, to best suit the needs of the borrower and the project.

CONCLUSION

72. EA is a tool to assist TMs in making good decisions: to screen projects efficiently for their environmental impacts; to clarify to governments what is needed for sustainable projects; and to design them effectively. If EA is approached positively as an opportunity to find out a lot about a project before costly problems arise, the combined experience gained Bank-wide will produce increasingly flexible and cost-effective procedures. It is in that spirit and with that goal that this Sourcebook is offered.

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Annex A: "Environmental Assessment"

1. This directive outlines Bank policy and procedures for the environmental assessment (EA) of Bank lending operations, and related types of environmental analysis. 1/ EA is a flexible procedure, which should vary in breadth, depth, and type of analysis depending on the project. It may be performed at one point in time or in discrete stages. EA is carried out during project preparation, before appraisal, and is closely linked to the feasibility study. For the purpose of this directive, EA covers project-specific and other environmental impacts in the area of influence of a project. 2/ EAs use the findings of country environmental studies and action plans that cover nationwide issues, the overall policy framework, national legislation, and institutional capabilities in the country.

Purpose and Nature of Environmental Assessment

2. The purpose of EA is to improve decision making and to ensure that the project options under consideration are environmentally sound and sustainable. 3/ All environmental consequences should be recognized early in the project selection, siting planning, and design. EAs identify ways of improving projects environmentally, by preventing, minimizing, mitigating, or compensating for adverse impacts. These steps help avoid costly remedial measures after the fact. By calling attention to environmental issues early, EAs

(a) allow project designers, implementing agencies, and borrower and Bank staff to address environmental issues in a timely and cost-effective fashion;

(b) reduce the need for project conditionality because appropriate steps can be taken in advance or incorporated into project design, or alternatives to the proposed project can be considered; and

(c) help avoid costs and delays in implementation due to unanticipated environmental problems. EAs also provide a formal mechanism for interagency coordination on environmental issues and for addressing the concerns of affected groups and local nongovernmental organizations (NGOs). In addition, the EA process plays an important role in building environmental management capability in the country.

3. Like economic, financial, institutional, and engineering analyses, EA is part of project preparation and is, therefore, the borrower's responsibility. Close integration of EA with these aspects of project preparation ensures that

(a) environmental considerations are given adequate weight in project selection, siting, and design decision; and

- (b) EAs do not delay project processing.

Types of Environmental Analysis Project-Specific EAs

4. Project-specific EAs or other analyses are used to examine specific investment projects (e.g., dams, factories, irrigation systems). The detail and sophistication of an analysis should be commensurate with the expected impacts. Project-specific EAs should normally cover

- (a) existing environmental baseline conditions;
- (b) potential environmental impacts, direct and indirect, including opportunities for environmental enhancement;
- (c) systematic environmental comparison of alternative investments, sites, technologies, and designs;
- (d) preventive, mitigatory, and compensatory measures, generally in the form of an environmental mitigation or management plan;
- (e) environmental management and training; and
- (f) environmental monitoring. To the extent possible, the following items are quantified: capital and recurrent costs, environmental staffing, training, monitoring requirements, and the benefits of proposed alternatives and mitigation measures. Annex A sets out a checklist of potential issues for an EA; Annex B provides the outline of a project-specific EA report. Annex C describes the set of measures that should be included in an environmental mitigation or environmental management plan. Annex D outlines the Bank's internal procedures, Annex E provides illustrative lists of projects classified in categories A through C, and Annex F sets out the format for an environmental data sheet for projects in the IBRD/IDA lending program. The data sheet for each category A project is included in a quarterly annex to the Monthly Operational Summary of Bank and IDA Proposed Projects (MOS).

Regional and Sectoral EAs

5. Regional EAs may be used where a number of similar but significant development activities with potentially cumulative impacts are planned for a reasonably localized area. In such cases, regional EAs are generally more efficient than a series of project-specific EAs. They may identify issues that the latter might overlook (e.g., interaction among effluents or competition for natural resources). Regional EAs compare alternative development scenarios and recommended environmentally sustainable development and use patterns and policies. Impacts may sometimes extend across national boundaries. However, regional EAs with an institutional focus might follow administrative boundaries. Regional EAs are particularly useful when they precede the first in a series of projects or development interventions in an undeveloped region, where a region is slated for major developments, where cumulative impacts are anticipated, or in regional planning or agro-ecological zoning.

6. Sectoral EAs are used for the design of sector investment programs. They are particularly suitable for reviewing

- (a) sector investment alternatives;
- (b) the effect of sector policy changes;
- (c) institutional capacities and requirements for environmental review, implementation, and monitoring at the sectoral level; and

(d) the cumulative impacts of many relatively small, similar investments that do not merit individual project-specific EAs. Sectoral EAs should also have the objective of strengthening the environmental management capability of the sectoral or other relevant agencies. Sectoral EAs may overlap with regional EAs.

7. Though in some cases regional or sectoral EAs cover some of the requirements of project-specific EAs, the latter are still needed for major investments. Nevertheless, the regional or sectoral EAs will have identified relevant issues, collected much of the data, and, in general, greatly reduced the work needed in subsequent project-specific EAs.

Alternatives to EAs

8. Many specific investment projects do not need a full EA. Typically, these projects are smaller, are not in environmentally sensitive areas, and present issues that are narrow in scope, well defined, and well understood. Alternative approaches may, therefore, be more effective in integrating environmental concerns into the borrower's planning process, and in focusing on the environmental work needed. Such alternative approaches ^{4/} include, for example: . specific environmental design criteria and pollution standards, acceptable to the Bank, for small-scale industrial plants; . specific environmental design criteria and construction supervision programs for small-scale rural works projects; and. specific environmental siting criteria, construction standards, and inspection procedures for housing projects.

Sector and Financial Intermediary Lending

9. For sector investment loans and loans through financial intermediaries, for which sub-project details are not known at the time of project appraisal, the borrower may not be able to prepare an EA as part of project preparation. Further, such projects usually consist of many small investments, which seldom require full EAs. In such cases, the project implementing institutions need to screen proposed sub-projects and carry out appropriate environmental analyses consistent with this directive, prior to sub-loan approval. To ensure that this can be done, the Bank should appraise and strengthen, where necessary, the implementing agency's environmental capabilities to

(a) screen sub-projects along the lines of this directive (see para. 17 and Annex E);

(b) obtain the necessary expertise for EA preparation;

(c) review EA reports;

(d) implement mitigation plans; and

(e) monitor environmental conditions during project implementation. ^{5/} The aim should be to help establish satisfactory environmental review systems in the appropriate agencies, rather than to focus only on those investments against which the Bank happens to disburse.

Emergency Recovery Projects

10. Because emergency recovery projects need to be processed rapidly, and seek mainly to restore existing facilities, they would not normally require a full EA. However, the extent to which an emergency was precipitated or exacerbated by inappropriate environmental practices should be determined. Based on this finding, corrective measures should be built into either the emergency project or a future lending operation.

Global Issues

11. A number of agencies -- inside and outside the United Nations (U.N.) system -- carry out scientific investigations on global environmental issues (ozone depletion, global warming, sea level rise, ocean dumping, pollution of international waters, transport of hazardous wastes, biodiversity, etc.). While it keeps

abreast of the findings of these agencies, the Bank is developing its own guidelines in these areas. The Bank also draws upon prevailing views in its own environmental, economic, sectoral, and investment policies and programs, with a view to minimizing possible adverse impacts on global environmental quality. The Bank encourages such issues to be considered in EAs where relevant and feasible. 7/

Institutional Aspects

Strengthening Environmental Capabilities

12. The ultimate success of EA depends upon the capability and understanding of environmental matters of the government agencies concerned. Therefore, as part of the EA process, it is necessary to identify relevant environmental agencies and their capability for carrying out required EA activities. Projects with potentially major impacts normally require the strengthening of several environmental functions (e.g., environmental monitoring, inspection, management of mitigatory measures, EA scientific and technical review, and cross-sectoral coordination). In addition, policy strengthening is often needed through the development of legal or regulatory measures (including incentives) that ensure adequate environmental performance standards. These functions may be located in one or more units and at one or more administrative levels, depending on the country and project. 8/ Early focus

- (a) helps ensure that the executing agency's and central policy entity's knowledge and perspectives are taken into account;
- (b) provides on-the-job training for staff; and
- (c) provides continuity for implementing the EAs recommendations. In addition, to help develop EA capability in the country, the Bank encourages the use of local expertise and promotes EA training for local staff and consultants.

Environmental Advisory Panels

13. For major, highly risky, or contentious projects with serious and multidimensional environmental concerns, the borrower should normally engage an advisory panel of independent, internationally recognized, environmental specialists to advise on

- (a) the terms of reference [TORs] for the EA;
- (b) key issues and methods for preparing the EA;
- (c) recommendations and findings of the EA;
- (d) implementation of the EAs recommendations; and
- (e) development of environmental management capacity in the implementing agency.

EA Procedures

14. Since project and country conditions, national legislation, and institutional experience vary among borrowers, both the borrower and the Bank must exercise judgment in using the EA process to design and implement projects that are both environmentally and economically sound, and that are consistent with the environmental laws, policies, and procedures of the borrower. The Environment (ENV), the Legal Department, and the Regional environment divisions (REDs) maintain information on these requirements.

EA Preparation

15. Through EA preparation is the responsibility of the borrower, the Bank's task manager (TM) assists and monitors the EA process, with support from the RED. 11/ The borrower and the Bank should agree as early as possible after issuance of the Initial Executive Project Summary (IEPS) on the terms of reference (TORs) for the EA, and on the EA procedures, schedule, and outline. This is because

(a) EA preparation should form part of the overall feasibility study or preparation work for the project, so that the EA's findings can be directly integrated into project design;

(b) some EAs require substantial time for preparation (see Annex D, paras. 6-7); and

(c) completion of the EA report is a prerequisite for the departure of the appraisal mission. Major steps in the EA process are outlined in Annex D. The steps include

(a) screening (see para. 17 and Annex E);

(b) taking decisions based on the IEPS;

(c) notifying the Board through the MOS;

(d) preparing TORs for the EA;

(e) preparing the EA;

(f) reviewing the EA and incorporating environmental measures into the project;

(g) supervising the project; and

(h) evaluating the project ex post.

16. Borrowers may request Bank assistance for financing EAs through a Project Preparation Facility 12/ (PPF) advance, from the Technical Assistance Grant Program for the Environment, or from trust funds. When the EA is prepared by specialists separately from the overall feasibility teams. For projects with potentially major adverse environmental impacts, such as large dams or projects involving large-scale resettlement, the borrower should retain independent EA experts not affiliated with the project.

Environmental Screening

17. The TM should screen projects/components at identification to determine the nature and extent of the environmental work required. As a result of the screening, the TM, with the concurrence of the RED, assigns the project to one of the following categories, 13/ in accordance with Annex E: Category A: A full EA is required. Category B: Although a full EA is not required, environmental analysis is required. Category C: No EA or environmental analysis is required.

Interagency Coordination

18. Because environmental issues generally involve national, provincial, and local government agencies and cover a broad range of responsibilities (wildlife, health, water and land use, tourism, etc.), coordination among government agencies is crucial. Coordination is best achieved through interagency meetings convened by the proponent agency at key points, i.e., once the decision has been reached to carry out a full EA, and once the draft EA report has been completed. The meetings provide an opportunity to identify the issues, types of analysis required, sources of relevant expertise, responsibilities and schedule for the EA, mitigatory measures to be considered, and other recommendations.

Involvement of Affected Groups and Nongovernmental Organizations

19. The Bank expects the borrower to take the views of affected groups and local NGOs ^{14/} fully into account in project design and implementation, and in particular in the preparation of EAs. This process is important in order to understand both the nature and extent of any social or environmental impact and the acceptability of proposed mitigatory measures, particularly to affected groups. Consultations do not reduce the decision authority of the borrower, but are a valuable way to improve decision making, to obtain feedback on the EA process and draft report, and to increase community cooperation in implementing the recommendations of the EA.

20. Such consultations should occur at least at the following two stages of the EA process:

(a) shortly after the EA category has been assigned; and

(b) once a draft EA has prepared. In projects with major social components, which require consultations pursuant to other Bank Operational Directives, ^{16/} the consultations on social issues and on EA may be linked.

Disclosure of Information

21. In order for meaningful consultations to take place between the borrower and affected groups and local NGOs, it is necessary that the borrower provide relevant information prior to consultations. The information should be provided in a timely manner and in a form that is meaningful for, and accessible to, the groups being consulted. Such information normally includes

(a) for the initial consultation, a summary of the project description and objectives, and potential adverse effects of the proposed project; and

(b) once the EA report has been prepared, a summary of its conclusions in a form and language meaningful to the groups being consulted. Any consultation should pay particular attention to those issues most likely to affect the people being consulted. In addition, the borrower should make the EA report available at some public place accessible to affected groups and local NGOs for their review and comment.

22. Bank policy is to request the borrower's advance permission to release the EA report to the executive directors (EDs) because the report is the borrower's property. When the need for an EA and the TORs for the EA are discussed with the borrower, the TM should seek the borrower's permission, in principle, for the release of the report to the EDs. Once the Bank has received a copy of the EA report from the borrower with the necessary permission for release, the country department (CD) should transmit the borrower's English language summary of the EA to the Secretary's Department for distribution to the EDs. Further, because an important purpose of the EA process is informed decision making, the TM should deposit a copy of the EA report (with- out Bank endorsement) in the project file. If the borrower indicates at any time that it is not in a position to release such a report to the EDs, the Bank should not proceed with further work on the project, unless the Senior Vice President, Operations (OPNSV), decides otherwise on the recommendation of the Regional vice president concerned, and for objective reasons unrelated to the environment soundness of the project.

Footnotes

^{1/} (Unless the context otherwise requires, "EA" means the environmental process required by this directive. "Bank" includes IDA; "loans" include credits; "operations" and "investments" include sector loans, rehabilitation loans, loans through financial in- termediaries, and the investment components of hybrid loans. Global Environment Facility (GEF) projects, or GEF components of Bank projects, are subject to the provisions of this directive. IFC follows its own environmental review procedure. In addition, IFC ensures that its projects comply with all relevant Bank environmental policies and guidelines, adapted to its special needs. Bearing in mind its special circumstances, MIGA will ensure, to the extent possible, that the objectives of this directive are met in its operations.

2/ The World Bank, Environmental Assessment Sourcebook, Technical Paper No. 139 (Washington, D.C., 1991) (EA Sourcebook) provides guidance on the subjects covered in this directive. The EA Sourcebook should be used for guidance throughout the EA process. For the Bank's definition of "area of influence of a project," see para. 3 and Annex B2 of OD 4.00, Annex B, "Environmental Policy for Dam and Reservoir Projects" (to be reissued as OD 4.05). For a checklist of potential issues for an EA and related Bank policies, see Annex A.

3/ Guidance on sustainability is provided in OMS 2.36, "Environmental Aspects of Bank World" (to be reissued as OD 4.00, "Environmental Policies").

4/ In some cases, adherence to other existing directives is an acceptable alternative to an EA (e.g., OPN 11.01, "Guidelines for the Selection and Use of Pesticides in Bank-Financed Projects and their Procurement When Financed by the Bank," to be reissued as OD 4.03, "Agricultural Pest Management").

5/ The appraisal mission develops clear arrangements with the borrower for carrying out these functions during project implementation, indicating the sources of required expertise and the proper division of responsibilities among the ultimate borrower, the financial intermediary or sector agency, and the agencies responsible for environmental management and regulation. These arrangements ensure that sub-projects that do not comply with accepted environmental aspects of sector and financial intermediary lending.

6/ See OD 8.50, "Emergency Recovery Assistance."

7/ Guidance will be prepared on global environmental issues by the Environment Department (ENV) in cooperation with the Regional environment divisions (REDs).

8/ The first level of environmental involvement is on-site; a second, at the level of the implementing or executing agency, such as a Department of Agriculture, or Health; and a third at a central policy level, such as an environmental agency or other central policy-making body that oversees and coordinates intersectoral aspects.

9/ Guidance on institutional strengthening is provided in the EA Sourcebook.

10/ For more detail on the selection and functions of the panel, see para. 18 of OD 4.00, Annex B, "Environmental Policy for Dam and Reservoir Projects" (to be reissued as OD 4.05).

11/ See OD 9.00, "Processing of Investment Lending," for the context of loan processing into which decisions on the environment category and the EA fit.

12/ See OD 8.00, "Project Preparation Facility."

13/ See footnote 11.

14/ For the Bank's overall approach to NGOs, see OD 14.70, "Involving Nongovernmental Organizations in Bank-Supported Activities."

15/ Further consultations are encouraged at other appropriate points during EA preparation, after EA finalization, and throughout project implementation. Updates and information feedback between meetings are best when they are systematic and routine. One approach that has been effectively used by many countries is to follow the first interagency meeting with an initial consultation session with affected groups and local NGOs.

16/ For example, OD 4.30, "Involuntary Resettlement," and OD 4.20, "Indigenous Peoples."

ANNEX A

Checklist of Potential Issues for an EA

Where applicable, EAs should address the following issues, which are subject to the Bank policies and guidelines identified here:

- (a) Agrochemicals. The Bank promotes the use of integrated pest management (IPM) and the careful selection, application, and disposal of pesticides (see OPN 11.01, "Guidelines for the Selection and Use of Pesticides in Bank-Financed Projects and Their Procurement When Financed by the Bank"). Due to their impacts on surface and groundwater quality, the use of fertilizers must also be carefully assessed.
- (b) Biological Diversity. The Bank promotes conservation of endangered plant and animal species, critical habitats, and protected areas (see para 9b of OMS 2.36, "Environmental Aspects of Bank Work," to be reissued as OD 4.00, "Environmental Policies," and OPN 11.02, "Wildlands: Their Protection and Management in Economic Development," to be reissued as OD 4.04, "Wildlands.")
- (c) Coastal and Marine Resources Management. Guidelines are available from the Environment Department (ENV) on the planning and management of coastal marine resources, including coral reefs, mangroves and wetlands.
- (d) Cultural Properties. OPN 11.03, "Management of Cultural Property in Bank-Financed Projects" (to be reissued as OD 4.25, "Cultural Property"), confirms the Bank's commitment to protect archaeological sites, historic monuments, and historic settlements.
- (e) Dams and Reservoirs. OD 4.00, Annex B, "Environmental Policy for Dam and Reservoir Projects" (to be reissued as OD 4.05), provides specific guidance for addressing environmental issues in the planning, implementation, and operation of dam and reservoir projects.
- (f) Hazardous and Toxic Materials. Guidelines are available from ENV on the safe manufacture, use, transport, storage, and disposal of hazardous and toxic materials.
- (g) Indigenous Peoples. OD 4.20, "Indigenous Peoples" (formerly OMS 2.34, "Tribal People in Bank-Financed Projects"), provides specific guidance for addressing the rights of indigenous peoples, including traditional land and water rights.
- (h) Induced Development and Other Sociocultural Aspects. Secondary growth of settlements and infrastructure, often referred to as "induced development" or "boomtown" effects, can have major indirect environmental impacts, which relatively weak local governments may have difficulty addressing.
- (i) Industrial Hazards. All energy and industry projects should include a formal plan to prevent and manage industrial hazards (see Technical, Ltd., and World Bank, *Techniques of Assessing Industrial Hazards: A Manual*, Technical Paper No. 55, Washington, D.C., 1988).
- (j) International Treaties and Agreements on the Environment and Natural Resources. The EA should review the status and application of such current and pending treaties and agreements, including their notification requirements. The Legal Department, which maintains a list of international treaties, could obtain the information required on applicable laws in individual countries.
- (k) International Waterways. OD 7.50, "Projects on International Waterways," provides guidance. This OD exempts from notification requirements any rehabilitation projects that will not affect the quality or quantity of water flows.

- (l) Involuntary Resettlement. OD 4.30, "Involuntary Resettlement," renders guidance.
- (m) Land Settlement. Due to the complex physical, biological, socioeconomic, and cultural impacts, land settlement should generally be carefully reviewed (see OD 4.31, "Land Settlement," to be issued).
- (n) Natural Hazards. The EA should review whether the project may be affected by natural hazards (e.g., earthquakes, floods, volcanic activity) and should propose specific measures to address these concerns when appropriate (see OD 8.50, "Emergency Recovery Assistance").
- (o) Occupational Health and Safety. All industry and energy projects, and projects in other sectors where relevant, should include formal plans to promote occupational health and safety (see World Bank, Occupational Health and Safety Guidelines, Washington, D.C., 1988).
- (p) Ports and Harbors. Guidelines are available from the Infrastructure and Urban Development Department on addressing common environmental concerns associated with port and harbor development (see World Bank, Environmental Considerations for Port and Harbor Developments, Technical Paper No. 126, Washington, D.C., 1990).
- (q) Tropical Forests. The Bank's "Forest Policy" paper of July 1991 should be followed. OPN 11.02, "Wildlands: Their Protection and Management in Economic Development" (to be reissued as OD 4.04, "Wildlands"), also addresses issues relating to tropical forests.
- (r) Watersheds. Bank policy promotes the protection and management of watersheds as an element of lending operations for dams, reservoirs, and irrigation systems (see para 6 of OD 4.00, Annex B, "Environmental Policy for Dam and Reservoir Projects," to be reissued as OD 4.05).
- (s) Wetlands. The Bank promotes conservation and management of wetlands (e.g., estuaries, lakes, mangroves, marshes, and swamps). This subject is covered by OPN 11.02 (see [t] below).
- (t) Wildlands. The Bank is committed to protect wildlands and provides for compensatory measures when lending results in adverse impacts (see OPN 11.02, "Wildlands: Their Protection and Management in Economic Development," to be reissued as OD 4.04, "Wildlands").

ANNEX B

Outline of a Project-Specific EA Report

1. A full EA report should be concise and should focus on the significant environmental issues. The report's level of detail and sophistication should be commensurate with the potential impacts. The target audience should be project designers, implementing agencies, and borrower and bank staff. The report submitted to the Bank should be prepared in English, French, or Spanish.
2. The EA report should include the following items:
 - (a) Executive Summary. Concise discussion, in English, of significant findings and recommended actions.
 - (b) Policy, Legal, and Administrative Framework. Discussion of the policy, legal, and administrative framework within the EA is prepared. The environmental requirements of any cofinanciers should be explained.
 - (c) Project description. Concise description of the project's geographic, ecological, social, and temporal context, including any off-site investments that may be required by the project (e.g., dedicated pipelines, access roads, power plants, water supply, housing, and raw material and product storage facilities).

(d) **Baseline Data.** Assessment of the dimensions of the study area and description of relevant physical, biological, and socioeconomic conditions, including any changes anticipated before the project commences. Current and proposed development activities within the project area (but not directly connected to the project) should also be taken into account.

(e) **Environmental Impacts.** Identification and assessment of the positive and negative impacts likely to result from the proposed project. Mitigation measures, and any residual negative impacts that cannot be mitigated, should be identified. Opportunities for environmental enhancement should be explored. The extent and quality of available data, key datagaps, and uncertainties associated with predictions should be identified/estimated. Topics that do not require further attention should be specified.

(f) **Analysis of Alternatives.** Systematic comparison of the proposed investment design, site, technology, and operational alternatives in terms of their potential environmental impacts; capital and recurrent costs; suitability under local conditions; and institutional, training, and monitoring requirements. For each of the alternatives, the environmental costs and benefits should be quantified to the extent possible, and economic values should be attached where feasible. The basis for the selection of the alternative proposed for the project design must be stated.

(g) **Mitigation Plan.** Identification of feasible and cost-effective measures that may reduce potentially significant adverse environmental impacts to acceptable levels, and estimation of the potential environmental impacts; capital and recurrent costs; and institutional, training, and monitoring requirements of those measures. The plan (sometimes known as "action plan," or "environmental mitigation or management plan," outlined in Annex C) should provide details on proposed work programs and schedules. Such details help ensure that the proposed environmental actions are in phase with engineering and other project activities throughout implementation. The plan should consider compensatory measures if mitigation measures are not feasible or cost-effective.

(h) **Environmental Management and Training.** Assessment of the existence, role, and capability of environmental units on-site, or at the agency and ministry level. Based on these findings, recommendations should be made concerning the establishment and/or expansion of such units, and the training of staff, to the point that EA recommendations can be implemented.

(i) **Environmental Monitoring Plan.** Specification of the type of monitoring, who would do it, how much it would cost, and what other inputs (e.g., training) are necessary.

(j) **Appendices**

(i) List of EA Preparers--individuals and organizations. (ii) References -- written materials used in study preparation. This list is especially important given the large amount of unpublished documentation often used. (iii) Record of Interagency/Forum/Consultation Meetings -- including lists of both invitees and attendees. The record of consultations for obtaining the informed views of the affected people and local NGOs should be included. The record should specify any means other than consultations that were used to obtain the views of affected groups and local NGOs.

ANNEX C

Environmental Mitigation or Environmental Management Plan

1. A project's mitigation or environmental management plan consists of the set of measures to be taken during implementation and operation to eliminate, offset, or reduce adverse environmental impacts to acceptable levels. Also included in the plan are the actions needed to implement them. Mitigation plans are essential elements of category A projects (see Annex E). Mitigation plans alone suffice for many category B projects. During the preparation of a mitigation plan, project sponsors and their EA design team

- (a) identify the set of responses to potentially adverse impacts;
- (b) determine requirements for ensuring that those responses are made effectively and in a timely manner; and
- (c) describe the means for meeting those requirements.

2. A mitigation or management plan should include the following items:

- (a) identification and summary of all the significant adverse environmental impacts that are anticipated;
- (b) description and technical details for each mitigation measure, including the type of impact to which it relates and the conditions under which it relates and the conditions under which it is required (e.g., continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate;
- (c) institutional arrangements -- the assignment of the various responsibilities for carrying out the mitigatory measures (e.g., responsibilities which involve operation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting, and staff training);
- (d) implementation schedule for measures that must be carried out as part of the project, showing phasing and coordination with overall project implementation plans;
- (e) monitoring and reporting procedures to
 - (i) ensure early detection of conditions that necessitate particular mitigation measures, and (ii) provide information on the progress and results of mitigation; and
- (f) integration into the total project cost tables of the cost estimates and sources of funds for both the initial investment and the recurring expenses for implementing the mitigation plan.

6.3. To strengthen environmental management capability in the agencies responsible for implementation, most mitigation plans cover one or more of the additional topics identified below:

- (a) technical assistance programs
- (b) staff development
- (c) procurement of equipment and supplies, and
- (d) organizational changes.

4. The borrower's decision to proceed with a project, and the Bank's decision to support it, will be in part predicated on the exception that the mitigation plan will be executed effectively. Consequently, it is important to integrate the plan into the project's overall planning, design, budget, and implementation. Such integration should be achieved by establishing the mitigation plan as a component of the project. This precaution ensures that the plan will receive funding and supervision along with the other investment components.

5. Specific links should exist for

- (a) funding,
- (b) management and training (strengthening local capabilities), and

(c) monitoring. The purpose of the first link is to ensure that the proposed actions are adequately financed. The second link helps embed in the overall management plan the training, technical assistance, staffing, and other institutional strengthening needed to implement the mitigatory measures. The third link is necessary to provide a critical path for implementation and to enable the sponsors and the Bank to evaluate the success of mitigation as a part of project supervision and as a means for improving future projects. These linkages may be part of the conditionality in Loan Agreements or in the Minutes of Negotiations.

ANNEX D

Environmental Assessment Procedures: Internal Initial Executive Project Summary (IEPS)

1. After consultation with the Regional environment division (RED), the task manager (TM) indicates in the Initial Executive Project Summary (IEPS)

(a) the key environmental issues,

(b) the project category (see Annex E) and the type of environmental work needed, and

(c) a preliminary EA schedule. In exceptional cases, if it is anticipated that an EA cannot be available prior to appraisal, the IEPS should propose special procedures to address the situation. The IEPS meeting should confirm the type, timing, and issues of environmental analysis. 7

Monthly Operational Summary

2. The TM ensures that the Monthly Operational Summary of the Bank and IDA Proposed Projects (MOS), which is used to alert the executive directors to forthcoming projects, contains the EA category assigned to a project. He also prepares and updates as needed an environmental data sheet for all projects in the IBRD/IDA lending program (see Annex F). For category A projects, the environmental data sheet will be included in a quarterly annex to the MOS. Preparation of Terms of Reference for the EA.

3. Following the IEPS meeting, the Bank discusses with the borrower the scope of the EA, and assists the borrower, as necessary, in preparing the terms of reference (TORs) for the EA. Normally, a field visit for this purpose is conducted by Bank environmental staff or environmental consultants. The Bank should ensure that the TORs provide for adequate interagency coordination and consultation with affected groups and local nongovernmental organizations (NGOs). For category A projects, it is advisable for Bank staff to attend scoping and EA review meetings.

4. To help ensure a full EA report, the borrower should be

(a) provided with the "Outline of a Project-Specific EA Report" (see Annex B) at the time the TORs for the EA are reviewed by the Bank and

(b) informed of the need to have the report submitted to the Bank written in English, French, or Spanish. The requirement in Annex B for an executive summary, to be prepared in English, should specifically be called to the borrower's attention. Environmental Assessment Preparation

5. The EA should form part of the overall feasibility study or project preparation, so that the EA's findings are directly integrated into project design. When the EA is prepared separately by specialists, the specialists should liaise closely with the project preparation or feasibility teams. For projects with potentially major adverse environmental impacts, such as large dams or projects involving large-scale resettlement, the borrower should retain independent EA experts not affiliated with the project. Borrowers may request Bank assistance for financing EAs through a Project Preparation Facility (PPF) advance, from the Technical Assistance Grant Program for the Environment, or from trust funds.

6. An EA for a major project typically takes 6-18 months to prepare and review. The EA report should be received by the Bank prior to the departure of the appraisal mission, and a summary should be circulated with the Final Executive Project Summary (FEPS)/white cover Staff Appraisal Report (SAR) to minimize the risk of project changes and delays at a later stage.

7. For some projects, a full year of baseline data is essential to capture seasonal effects of certain environmental phenomena, such as rainy and dry seasons or species migrations. In contrast, other effects (e.g., hydroclimatic variation) may require multi year data. To avoid delay in critical project decisions in these cases, short-term monitoring should be used to provide conservative estimates of environmental impacts. In such instances, such short-term data can be a surrogate for annual data while longer term data are being collected. Since special care in designing the baseline monitoring program is warranted, the borrower should be encouraged to discuss the matter with the Bank. Environmental Assessment Review and Project Appraisal

8. For category A projects, the borrower submits the EA report to the Bank prior to the departure of the Bank's appraisal mission. This report follows (to the extent relevant) the outline for project-specific EA reports provided in Annex B and includes a separate English summary. The TM, with the advice of the RED, assesses the EA, taking into account the TORs agreed upon with the borrower. In addition, in view of the need for the borrower to take the views of affected groups and local NGOs into account, the TM ascertains the nature of the consultations undertaken with such groups and assesses the extent to which their views have been considered.

9. The FEPS summarizes the EA's status and describes how major environmental issues have been resolved or are to be addressed, noting any proposed conditionality. Prior to the FEPS meeting, the RED reviews and comments on the EA and on the EA annex in the white cover SAR. If the RED is not satisfied with the EA, it may recommend to the country department that

(a) the appraisal mission be postponed,

(b) the mission be considered a preappraisal mission, or

(c) certain issues be reexamined during the appraisal mission. The appraisal mission reviews both the procedural and substantive elements of the EA with the borrower, resolves any issues, assesses the adequacy of the institutions responsible for environmental management in light of the EA's findings, ensures that the mitigation plan is adequately budgeted, and determines if the EA's recommendations are properly addressed in project design and economic analysis. Distribution to Executive Directors

10. When an EA report is received from a borrower, the country department should ensure that the English-language summary is sent to the Adviser and Board Operations, Secretary's Department, for distribution to the executive directors, and that the full EA report is placed in the project file. The EA summary's transmittal memorandum, for signature by the country department director, should state that the EA summary, and the full report filed,

(a) have been prepared by the borrower and have not been evaluated or endorsed by the Bank; and

(b) are subject to review and possible change during the appraisal process. 11. The TM should also ensure that the next quarterly issue of the MOS, Annex B, contains an entry indicating the date on which the EA report was received. The receipt of the EA report should also be noted on the environmental data sheet (see Table 1.1).

Board Documents

12. The findings of the EA process and the procedures used in its preparation are summarized in the text of the SAR and in the Memorandum and Recommendation of the President. A SAR annex summarizes the EA

of category A projects more fully. The summary covers, inter alia, environmental baseline conditions; the alternatives considered; preventive, mitigatory, and compensatory actions; the capability of environmental units and measures to strengthen them; environmental monitoring arrangements; revisions; to the EA required as a result of the appraisal; and the borrower's consultations with affected groups and NGOs. These factors provide the basis for the RED's formal environmental clearance, prior to the authorization of negotiations by the Regional vice president. The EA annex should also indicate if a revised EA report has been prepared and included in the project file. Measures critical to sound project implementation may require specific loan conditionality. Supervision

13. EA recommendations provide the basis for supervising the environmental aspects of the project during implementation. Compliance with environmental commitments, the status of mitigatory measures, and the findings of monitoring programs are part of borrower reporting requirements and project supervision. When major issues arise, special supervision missions with adequate environmental expertise are programmed and budgeted in advance, where possible. Ex Post Evaluation

14. The project completion report (see the OPNSV memorandum "Guidelines for Preparing Project Completion Reports [PCRS], June 7, 1989, and OMS 3.58, "General Guidelines for Preparing Project Completion Reports, which are to be combined and reissued as OD 13.55, "Project Completion Reports) submitted to the Operations Evaluation Department evaluates

(a) environmental impacts, noting whether they were anticipated in the EA report;

(b) the effectiveness of the mitigatory measures taken; and

(c) institutional development and training. Role of the Environmental Department

15. Responsibility for all projects, including their EAs, is vested in the Regions. The role of the Environment Department (ENV) in the EA process is to support the Operations complex throughout. This EA supports focuses on training, dissemination of best practices, reviews, guidelines, and other operational support as requested. To enable it to fulfill this role, ENV should be kept systematically informed of key decisions at relevant stages of the EA process, such as screening, public participation, EA schedules, and EA reviews. The REDs share with ENV copies of EA reports that are submitted by borrowers to the Bank prior to appraisal. ENV should be consulted as needed in special cases. ENV is available, when deemed necessary, to discuss or assist with all aspects of the EA process at any stage. ENV will share with the other Regions the EAs, related materials, precedents, and experience originating in one Region. ENV will conduct post hoc EA reviews selectively with the REDs in order to ascertain best practice and the development of policies in this area.

ANNEX E

Environmental Screening Determination of EA Category

1. The purpose of screening is to decide the nature and extent of the EA or environmental analysis to be carried out. The classification of each proposed project depends on the type, location, sensitivity, and scale of the proposed project, as well as the nature and magnitude of its potential impacts. 1/ At identification and prior to the issuance of the Initial Executive Project Summary (IEPS), projects should be screened for environmental issues and assigned to one of three categories: A, B, or C. 2/ The selection of the category should be based upon the expected environmental impacts. Best professional judgment is essential throughout this procedure. Category A: A full EA is required. Category B: Although a full EA is not required, environmental analysis is required. Category C: No EA or environmental analysis is required.

2. The EA category should be assigned by the task manager (TM), with the concurrence of the Regional environment division (RED). An EA normally deals with the whole project, but it focuses most time and attention on the components with the potentially greatest negative impacts and their links with the rest of

the project. Any project may contain environmentally benign components; however, in projects with several components, those components with the most serious environmental issues should receive the principal focus. Projects are categorized according to the component with the potentially most serious adverse impact. Dual categories (e.g., A/C) should not be used. For instance, a relatively benign project with a single category A component is a category A project. The results of the screening should be reported in the Monthly Operational Summary of Bank and IDA Proposed Projects (MOS) and indicated on the environmental data sheet (see Table 1.1).

Revision of EA Categories

3. The EA category assigned to the project as part of the screening is based on the best judgment and information available at that early stage. If the project is modified or new information becomes available to justify reclassification, the TM should reclassify a proposed project. The reclassification should be done with the concurrence of the RED. The new classification that appears in the MOS should be followed by "(R)" to indicate a revision. The reasons for any reclassification should be recorded on the environmental data sheet (see Table 1.1).

Illustrative Lists

4. Bank and international experience shows that projects in certain sectors or of certain types are normally best classified as illustrated below. These examples are only illustrative; they are by no means exhaustive. 3/

- (a) Dams and reservoirs;
- (b) Forestry production projects;
- (c) Industrial plants (large-scale) and industrial estates;
- (d) Irrigation, drainage, and flood control (large-scale);
- (e) Land clearance and leveling;
- (f) Mineral development (including oil and gas);
- (g) Port and harbor development;
- (h) Reclamation and new land development;
- (i) Resettlement and all projects with potentially major impacts on people;
- (j) River basin development; 2
- (k) Thermal and hydropower development; and
- (l) Manufacture, transportation, and use of pesticides or other hazardous and/or toxic materials.

Category B Projects/Components

6. The project may have adverse environmental impacts that are less significant than category A impacts. Few if any of these impacts are irreversible. The impacts are not as sensitive, numerous, major, or diverse as category A impacts; remedial measures can be more easily designed. Preparation of a mitigation plan (see Annex C) suffices for many category B projects. Few category B projects would have a separate environmental report; most may be discussed in a separate chapter of the project preparation or feasibility study.

- (a) Agro-industries (small-scale);
- (b) Electrical transmission;
- (c) Aquaculture and mariculture;
- (d) Irrigation and drainage (small-scale);
- (e) Renewable energy;
- (f) Rural electrification;
- (g) Tourism;
- (h) Rural water supply and sanitation;
- (i) Watershed projects (management or rehabilitation); and
- (j) Rehabilitation, maintenance, and upgrading projects (small-scale).

Category C Projects/Components

7. An EA or environmental analysis is normally not required in this category because the project is unlikely to have adverse impacts. Professional judgment finds the project to have negligible, insignificant, or minimal environmental impacts.

- (a) Education;
- (b) Family planning;
- (c) Health;
- (d) Nutrition;
- (e) Institutional development;
- (f) Technical assistance; and
- (g) Most human resource projects.

Footnotes

1/ "Location" refers to proximity to or encroachment on environmentally fragile areas, such as mangroves, wetlands, and rain forests. "Scale" needs to be judged by the task manager (TM) in the country context; if large, the project is likely to be a category A project. "Sensitivity" refers to issues such as 3 impacts that are irreversible, affect vulnerable ethnic minorities, or involve involuntary resettlement.

2/ Projects classified in category D before this directive was issued should be reclassified, where practicable, by the TM with the concurrence of the Regional environmental division. An environment project formerly classified as category D may fall into any of the three categories.

3/ For example, highway and rural road projects and major urban water or sanitation projects, while normally category A, are not listed below because there are exceptions; hence, they are not clear examples.

ANNEX 1-2

Sample Terms of Reference (TOR) for Environmental Reconnaissance

1. Background information.

Brief project description and alternatives considered in its planning . Description of site: geographical and state of development (developed vs. greenfield) . Potential impacts of project . Purpose of overall mission to which expert will be assigned (project preparation, appraisal) . Types of other experts on mission . People and institutions whom expert should meet . Mission timing . Expected output of mission . Background documents, including maps (as annexes)

2. Technical aspects.

(a) Objectives of the expert services. A brief statement to ensure that all parties understand the purposes of the expert services and what is to be delivered upon its completion.

(b) Issues for study. Describe the key issues to be studied by the expert.

(c) Scope of study. Describe here the nature and extent to which the expert will examine the issues. Include the phrase "not necessarily limited to" as an indication that the expert is to identify and, after authorization, to work on other issues of importance should they emerge. 4

(d) Government's role in EA. If not done by others it may be desirable for the expert also to appraise the government's role and capabilities to carry out and deliver environmental assessments and to recommend how this may be implemented and, if necessary, strengthened.

(e) Content of outputs. Background, analysis, findings, recommendations, further actions, with timing and cost estimates.

(f) Form of outputs. (Section of Aide Memoire, sections of other reports, free-standing report.)

3. Administrative aspects. (These could be in the letter of solicitation and not duplicated here if in the letter.) . Mission timing . Expected person-days of effort: at home for background reading, in field, in Washington, home for report writing, and maximum number of paid days.

ANNEX 1-3

Sample Terms of Reference (TOR) for Environmental Assessment (Name of Project Category)

Note: Comments in [brackets] this TOR Outline indicate where content may have been included, excluded or modified in the project-specific sample TORs (see Annex 1-3A). When combined, the TOR Outline and the project-specific sample TORs provide comprehensive guidance for TOR preparation. Paragraph numbers in each text correspond for ease of reference.

1. Introduction. This section should state the purpose of the terms of reference, identify the development project to be assessed, and explain the executing arrangements for the environmental assessment.

2. Background Information. Pertinent background for potential parties who may conduct the environmental assessment, whether they are consultants or government agencies, would include a brief description of the major components of the proposed project, a statement of the need for it and the objectives it is intended to meet, the implementing agency, a brief history of the project, (including alternatives considered), its current status and timetable, and the identities of any associated projects. If there are other projects in progress or planned within the region 5 which may compete for the same resources, they should also be identified here.

3. Objectives. This section will summarize the general scope of the environmental assessment and discuss its timing in relation to the processes of project preparation, design, and execution.

4. Environmental Assessment Requirements. This paragraph should identify any regulations and guidelines which will govern the conduct of the assessment or specify the content of its report. They may include any or all of the following: . World Bank Operational Directive 4.01 Annex A: "Environmental Assessment," and other pertinent ODs, OMSs, OPNs, and Guide- lines; . national laws and/or regulations on environmental reviews and impact assessments; . regional, provincial or communal environmental assessment regulations; . environmental assessment regulations of any other financing organizations involved in the project.

5. Study Area. Specify the boundaries of the study area for the assessment (e.g., water catchment, airshed). If there are any adjacent or remote areas which should be considered with respect to impacts of particular.

6. Scope of Work. In some cases, the tasks to be carried out by a consultant will be known with sufficient certainty to be specified completely in the terms of reference. In other cases, information deficiencies need to be alleviated or specialized field studies or modelling activities performed to assess impacts, and the consultant will be asked to define particular tasks in more detail for contracting agency review and approval. Task 4 in the Scope of Work is an example of the latter situation.

7. Task 1. Description of the Proposed Project. Provide a brief description of the relevant parts of the project, using maps (at appropriate scale) where necessary, and including the following information: location; general layout; size, capacity, etc.; pre-construction activities; construction activities; schedule; staffing and support; facilities and services; operation and maintenance activities; required offsite investments; and life span. 6 [Note: there may be particular types of information appropriate in the description of the project category you are concerned with. Please specify them here.]

8. Task 2. Description of the Environment. Assemble, evaluate and present baseline data on the relevant environmental characteristics of the study area. Include information on any changes anticipated before the project commences. [Annotate or modify the lists below to show the critical information for this project category, or that which is irrelevant to it. You should particularly avoid compiling irrelevant data.]

(a) Physical environment: geology; topography; soils; climate and meteorology; ambient air quality; surface and ground- water hydrology; coastal and oceanic parameters; existing sources of air emissions; existing water pollution discharges; and receiving water quality.

(b) Biological environment: flora; fauna; rare or endangered species; sensitive habitats, including parks or preserves, significant natural sites, etc.; species of commercial importance; and species with potential to become nuisances, vectors or dangerous.

(c) Socio-cultural environment (include both present and projected where appropriate): population; land use; planned development activities; community structure; employment; distribution of income, goods and services; recreation; public health; cultural properties; tribal peoples; and customs, aspirations and attitudes.

9. Task 3. Legislative and Regulatory Considerations. Describe the pertinent regulations and standards governing environmental quality, health and safety, protection of sensitive areas, protection of endangered species, siting, land use control, etc., at international, national, regional and local levels (The TOR should specify those that are known and require the consultant to investigate for others.)

10. Task 4. Determination of the Potential Impacts of the Proposed Project. In this analysis, distinguish between significant positive and negative impacts, direct and indirect impacts, and immediate and long-term impacts. Identify impacts which are unavoidable or irreversible. Wherever possible, describe impacts quantitatively, in terms of environmental costs and benefits. Assign economic values when feasible. Characterize the extent and quality of available data, explaining significant information deficiencies and any

uncertainties associated with predictions of impact. If possible, give the TOR for studies to obtain the missing information. [Identify the types of special studies likely to be needed for this project category.] 7

11. Task 5. Analysis of Alternatives to the Proposed Project. Describe alternatives that were examined in the course of developing the proposed project and identify other alternatives which would achieve the same objectives. The concept of alternatives extends to siting, design, technology selection, construction techniques and phasing, and operating and maintenance procedures. Compare alternatives in terms of potential environmental impacts; capital and operating costs; suitability under local conditions; and institutional, training, and monitoring requirements. When describing the impacts, indicate which are irreversible or unavoidable and which can be mitigated. To the extent possible, quantify the costs and benefits of each alternative, incorporating the estimated costs of any associated mitigating measures. Include the alternative of not constructing the project, in order to demonstrate environmental conditions without it.

12. Task 6. Development of Management Plan to Mitigate Negative Impacts. Recommend feasible and cost-effective measures to prevent or reduce significant negative impacts to acceptable levels. Estimate the impacts and costs of those measures, and of the institutional and training requirements to implement them. Consider compensation to affected parties for impacts which cannot be mitigated. Prepare a management plan including proposed work programs, budget estimates, schedules, staffing and training requirements, and other necessary support services to implement the mitigating measures.

13. Task 7. Identification of Institutional Needs to Implement Environmental Assessment Recommendations. Review the authority and capability of institutions at local, provincial/regional, and national levels and recommend steps to strengthen or expand them so that the management and monitoring plans in the environmental assessment can be implemented. The recommendations may extend to new laws and regulations, new agencies or agency functions, intersectoral arrangements, management procedures and training, staffing, operation and maintenance training, budgeting, and financial support.

14. Task 8. Development of a Monitoring Plan. Prepare a detailed plan to monitor the implementation of mitigating measures and the impacts of the project during construction and operation. Include in the plan an estimate of capital and operating costs and a description of other inputs (such as training and institutional strengthening) needed to carry it out.

15. Task 9. Assist in Inter-Agency Coordination and Public/NGO Participation. Assist in coordinating the environmental assessment with other government agencies, in obtaining the views of local NGO's and affected groups, and in keeping records of meetings and other activities, communications, and comments and their disposition. (The Terms of Reference [TOR] should specify the types of 8 activities; e.g., interagency scoping session environmental briefings for project staff and interagency committees, support to environmental advisory panels, public forum.)

16. Report. The environmental assessment report should be concise and limited to significant environmental issues. The main text should focus on findings, conclusions and recommended actions, supported by summaries of the data collected and citations for any references used in interpreting those data. Detailed or uninterpreted data are not appropriate in the main text and should be presented in appendices or a separate volume. Unpublished documents used in the assessment may not be readily available and should also be assembled in an appendix. Organize the environmental assessment report according to the outline below. . Executive Summary . Policy, Legal and Administrative Framework . Description of the Proposed Project . Baseline Data . Significant Environmental Impacts . Analysis of Alternatives . Mitigation Management Plan . Environmental Management and Training . Environmental Monitoring Plan . Appendices: List of Environmental Assessment Preparers References Record of Interagency/Forum/Consultation Meetings (This is the format suggested in OD 4.01, Annex B; the TOR may specify a different one to satisfy national agency requirements as long as the topics required in the Bank's directive are covered.)

17. Consulting Team. [Environmental assessment requires interdisciplinary analysis. Identify in this paragraph which specializations ought to be included on the team for the particular project category.]

18. Schedule. Specify dates for progress reviews, interim and final reports, and other significant events.

19. Other Information. Include here lists of data sources, project background reports and studies, relevant publications, and other items to which the consultant's attention should be directed.

ANNEX 1-3A

9 Sample Terms of Reference (TOR) for Environmental Assessment of Wastewater Collection, Treatment, Reuse, and Disposal Systems

Note: paragraph numbers correspond to TOR Outline

5. Study Area. The drainage area to be serviced by the wastewater collection system; the tracts of land on which effluent or sludge are to be applied in reuse systems; marine, estuarine or inland waters which could be influenced by effluent discharge; remote sites identified for disposal of solid waste generated in the treatment process; and, if incineration is included as a sludge disposal technique, the airshed which might be affected.

7. Task 1. Description of the Proposed Project. Provide a full description of the project, using maps (at appropriate scale) where necessary, and including the following information: location; general layout; unit process description and diagram; size in terms of population and population equivalents, present and projected; number and types of connected industries; anticipated influent and effluent characteristics; pre-construction activities; construction activities, schedule, staffing and support facilities and services; operation and maintenance activities; required off-site investments; and life span.

8. Task 2. Description of the Environment.

(a) Physical environment: geology (general description for overall study area; details for land application sites); topography; soils (general description for overall study area; details for land application sites); monthly average temperatures, rainfall and runoff characteristics; and description of receiving waters (identity of streams, lakes, or marine waters; annual average discharge or current data by month, chemical quality; existing discharges or withdrawals).

(b) Biological environment: terrestrial communities in areas affected by construction, facility siting, land application or disposal; aquatic, estuarine or marine communities in affected waters; rare or endangered species; sensitive habitats, including parks or preserves, significant natural sites; and species of commercial importance in land application sites and receiving waters.

(c) Sociocultural environment: present and projected population; present land use; planned development activities; community structure; present and projected employment by industrial category; distribution of income, goods and services; recreation; public health; cultural properties; tribal peoples; and customs, aspirations and attitudes.

9. Task 3. Legislative and Regulatory Considerations. Describe the pertinent regulations and standards governing environmental quality, pollutant discharges to surface waters and land, industrial discharges to public sewers, water reclamation and reuse, agricultural and landscape use of sludge, health and safety, protection of sensitive areas, protection of endangered species, siting, land use control, etc., at international, national, regional and local levels. (The TOR should specify those that are known and require the consultant to investigate for others.)

10. Task 4. Determination of the Potential Impacts of the Proposed Project. Special attention should be given to: . the extent to which receiving water quality standards and/or beneficial use objectives will be achieved with the proposed type and level of treatment; . the length of stream or expanse of lake or marine waters which will be positively or negatively affected by the discharge, and the magnitude of the changes in water quality parameters; . projected quantitative changes in beneficial uses, such as fisheries (species composition, productivity), recreation and tourism (visitor-days, overnights, expenditures), waters available for portable supply, irrigation, industrial use; and . sanitation and public health benefits anticipated.

17. Consulting Team. Core team: environmental engineer; environmental planner (or environmental generalist); specialist in ecology (terrestrial, aquatic or marine, depending on type of discharge), water quality, soils science (for land application), wastewater utility management, and sociology/anthropology. Depending on the nature of the project, other specialties that may be needed are: public health, agronomy, hydrology, land use planning, oceanography, water quality modelling, and resource economics.

19. Other Information. Examples are pre-feasibility studies, population and land use projections, land use plans, industrial activity information, water quality studies, sewerage service needs surveys, public health reports, sewer system evaluations.

ANNEX 1-4

Operational Directives, Operational Manual Statements, and Operational Policy Notes Related to Environmental Review and Assessments

Note: In each subsection, precursory Manual Statements or Policy Notes are listed for further reference. Proposed Operational Directives are listed, whether or not a draft is available. In such cases, descriptive notes for the precursory policy will be provided in the appropriate section. Direct quotations are from the policy statements themselves.

Operational Directives 1. OD 4.00: "Environmental Policies" (to be issued). Will replace OMS 2.36: "Environmental Aspects of Bank Work" (May 1984).

2. OD 4.01: "Environmental Assessment" (October 1991). This directive "incorporates the guidelines contained in OD 4.00, Annex A, dated October 31, 1989. It provides guidance to staff on the Bank's policies and procedures for conducting environmental assessments (EAs) of proposed projects." Annex A is a checklist of potential environmental issues encountered in Bank projects. Annex B is a sample outline of a project-specific EA report. Annex C is an environmental mitigation or management plan which consists of mitigation measures to be taken during project implementation and operation. The plan also includes the actions needed to implement them. Annex D provides a summary of Internal EA procedures. Annex E discusses Environmental Screening, the process of labeling projects according to probable environmental impacts. Annex F provides an example of a completed overview sheet (Environmental Data Sheet for Projects in the IBRD/IDA Lending Program) to record the information necessary for preparing the Monthly Operational Summary (MOS).

3. OD 4.00 Annex B: "Environmental Policy for Dam and Reservoir Projects" (April 1989). Principles of planning (e.g., determination of affected area, costs and benefits, alternatives), environmental issues at each stage of the project cycle and institutional aspects are specified. Annex B-1 details typical environmental effects of dams and reservoir projects. Annex B-2 defines the area of influence for projects of this type. Annex B-3 is a sample TOR for environmental reconnaissance. Annex B-4 is "Sample Clauses for Inclusion in the Bidding Documents Related to the Construction of Dam and Reservoir Projects."

4. OD 4.00 Annex C: "Agricultural Pest Management" (Draft to be re-issued as OD 4.02). Provides guidance for pest management and the use of pesticides and promotes adoption of the Integrated Pest Management (IPM) approach, toward the "fundamental goal of increasing agricultural productivity on a sustainable basis." Annex C-1 is guidelines for implementation of an IPM program. Annex C-2 sets forth comprehensive

guidance for the selection and use of pesticides. OD 11.00: "Guidelines for the Procurement of Pesticides" (Technical Note) will accompany OD 4.00 Annex C. Replaces OPN 11.01: "Guidelines for Selection and Use of Pesticides in Bank-Financed Projects and Their Procurement when Financed by the Bank" (March 1985).

5. OD 4.00 Annex D: "Wildlands: Their Protection and Management" (to be issued). Will replace OPN 11.02: "Wildlands: Their Protection and Management in Economic Development" (June 1986).

6. OD 4.20: "Indigenous Peoples" (September 17, 1991). Will replace OMS 2.34, "Tribal People in Bank-Financed Projects." This directive "addresses cultural issues in development and emphasizes the need for: adopting broader definitional criteria than the existing OMS to reflect the diversity of definitions and sensitivities found in member countries; ensuring that indigenous peoples are not adversely affected by Bank projects and that the social and economic benefits they receive are in harmony with their cultural preferences; addressing issues concerning peoples in economic and sector work; including project components on indigenous peoples in Bank-financed projects; and ensuring the informed participation of indigenous people in the preparation of development plans and in the design and implementation of projects."

7. OD 4.30: "Involuntary Resettlement" (June 1990). Emphasizes: minimizing involuntary resettlement; providing people displaced with the means to restore or improve their former living standard; resettlement planning; community participation; and compensation valuation and principles. Also provides practical guidance concerning project options, processing, documentation, etc.

8. OD 4.31: "Land Settlement" (to be issued).

9. OD 4.40: "Cultural Property" (Draft). Replaces OMS 2.34: "Tribal People in Bank-Financed Projects" (February 1982).

10. OD 4.50: "Cultural Property" (Draft). Replaces OPN

11.03: "Management of Cultural Property in Bank-Financed Projects" (September 1986). 3 11. OD 7.50: "Projects on International Waterways" (September 1989). Projects on international waterways require special handling as they may affect relations not only between the Bank and its borrowers but also between states, whether members of the Bank or not." This directive describes what types of waterways and projects are affected and the governing procedure. Annex A sets procedure for circumstances requiring technical advice from independent experts.

12. OD 8.0: "Project Preparation Facility" (to be issued). Will replace OMS 2.15: "Project Preparation Facility" (July 1986).

13. OD 8.30: "Financial Intermediary Lending" (to be issued). Will replace OMS 3.73: "Development Finance Companies" (September 1976).

14. OD 8.50: "Emergency Recovery Assistance" (Draft). This directive defines Bank objectives in emergency recovery loans (ERLS), i.e., to support broad recovery activities rather than provide immediate emergency relief. Preparation and implementation of ERLS is discussed comprehensively, as well as strategies for mitigating the impacts of future emergencies. Annex A discusses issues needing immediate attention after a disaster. Annex B lists and discusses special considerations in designing ERLS. Annex C provides guidance for preparation of a Technical Annex in lieu of the Staff Appraisal Report (when speed is essential). Replaces OPN 10.07: "Guidelines for Bank Participation in Reconstruction Projects after Disasters" (July 1984).

15. OD 9.00, Annex D: "Project Brief System" (to be issued). Will replace OMS 2.13 "Project Brief System."

16. OD 10.00 "Project Generation and Preparation" (to be issued). Will replace OMS 2.12: "Project Generation and Design" (August 1972).

17. OD 10.10: "Project Appraisal" (to be issued). Will replace OMS 2.20: "Project Appraisal" (January 1984).

18. OD 10.70: "Project Monitoring and Evaluation" (September 1989). Defines and distinguishes between monitoring and evaluation, and discusses Bank objectives in each. Provides comprehensive discussion of monitoring and the development of a management information system (MIS). An annex lists useful publications on project monitoring and evaluation.

19. OD 11.10: "Use of Consultants" (to be issued). Will replace OMS 2.18: "The Development of Local Capabilities and the Use of Local Consultants" (April 1977) and OMS 2.50: "Services of Consulting Firms for Bank Group Projects and UNDP Studies" (April 1973).

20. OD 12.10: "Retroactive Financing" (March 1989). Provides comprehensive discussion, including: policy regarding lending operations (investment, adjustment, hybrid, emergency recovery); exception to policy, safeguards, and notification procedures. The Annexes provide sample formats for Monthly Operational Summary (Adjustment Operations); Notice of Invitation to Negotiate for an Adjustment Operation Requiring an Exception to the Guidelines on Retroactive Financing; and Notice of Status of Negotiations for an Adjustment operation Requiring an Exception...etc. (These last two annexes are adapted "for an Investment Operation" as well.)

21. OD 13.55: "Project Completion Reports" (to be issued). Will replace OMS 3.58: "General Guidelines for Preparing Project Completion Reports" (June 1977) and OPNSV Memorandum: "Guidelines for Preparing Completion Reports" June (1989).

22. OD 14.30: "Aid Coordination Groups" (March 1989). This Directive provides guidance for coordination, taking into account not only various development assistance programs but also government policies and programs. Annex A is practical guidelines and procedures for preparing a "Sample Transmittal Memorandum for Chairman's Report of Proceedings." Annex C is a "Sample Transmittal Memorandum for World Bank and Government Reports." Annex D is a "Sample Notice of Meeting, Proposed Agenda, and Note on Administrative Arrangements."

23. OD 14.70: "Involving Nongovernmental Organizations in Bank-Supported Activities" (August 1989). The diversity of nongovernmental organizations (NGOs) is discussed, and ways to involve them in projects are laid out.

Operational Manual Statements

24. OMS 2.12: "Project Generation and Design" (August 1972). Discusses the Bank's approach to generating projects; the impacts of design alternatives on project outcome; Bank/Borrower relationships in project generation and design; and management of the process. Annex titles are: Project Generation and Design: Definitions; Origin of Project Ideas; Project Identification/Formulation/Analysis Process Flow Chart; and Sources of Assistance in Project Identification and Preparation. Will be replaced by OD 10.00.

25. OMS 2.13: "Project Brief System" (April 1977). Discussion of objectives of project brief (PB), "the basic issues-oriented operational document relating to the early part of the project cycle." Annex 1 provides practical guidance for preparation of documents. Annex 2 is comprehensive discussion of the PB system. Will be replaced by OD 9.00 Annex D.

26. OMS 2.15: "Project Preparation Facility" (July 1986). Provides discussion of rationale for Project Preparation Facility (PPF), including financial characteristics, appropriate application, and operating procedures. Annex A lists sources available for necessary preparatory work for Bank projects. Annex B-1 is a "Model of Government Letter Requesting a PPF Advance" Annex B-2 sets forth stipulations for financial

advances. Annex B-3 is a "Model of a Bank Response Granting a PPF Advance." Annex C is a sample agreement of how the special account will be set up. Annex D is a sample agreement for reporting arrangements. Annex E is a "PPF Request Transmittal Sheet." Will be replaced by OD 8.00.

27. OMS 2.18: "The Development of Local Capabilities and the Use of Local Consultants" (April 1977). Discusses the Bank's commitment to developing local capabilities to conceive, design and carry out development work, and to developing capabilities among local consultants specifically. Will be replaced by OD 11.10.

28. OMS 2.20: "Project Appraisal" (January 1984). Provides discussion of general objectives of appraisal; major aspects of the project (economic, technical, institutional, financial, commercial, and sociological); technical assistance requirements; and procedures and responsibilities for appraisal. A circular is filed with OMS 2.20: "Construction Insurance Consultants" (with an annex listing analysis of project risks and insurance needs). Will be replaced by OD 10.10.

29. OMS 2.34: "Tribal People in Bank-Financed Projects" (February 1982). Discussion of characteristics of tribal people that make them particularly vulnerable to being adversely affected by projects. Concise overview of Bank policy and applicability.

30. OMS 2.36: "Environmental Aspects of Bank Work." States the Bank's emphasis on environmental opportunities and risks introduced by the development process: local, regional and global. Discussion of Bank environmental policies and responsibilities. Will be replaced by OD 4.00.

31. OMS 2.50: "Services of Consulting Firms for Bank Group Projects and UNDP Studies." Provides practical suggestions for involving local consultants in Bank projects; e.g., preparation of "short list," evaluation of consultants, and sample letter of invitation. Will be replaced by OD 11.10.

32. OMS 3.02: "Format and Content of President's Report and Recommendations" (December 1977). Comprehensive guidelines for preparation of the President's Report. Attachments provide instructions and sample formats for various parts of the report.

33. OMS 3.58: "General Guidelines for Preparing Project Completion Reports" (June 1977). Will be replaced by OD 13.55.

34. OMS 3.73: "Development Finance Companies" (September 1976). Will be replaced by OD 8.30.
Operational Policy Notes

35. Addendum to OPN 11.01: "Guidelines for the Use, Selection and Specification of Pesticides in Public Health Programs" (September 1987). Discusses vector control, guidelines for selecting pesticides for public health use, and specifications.

36. OPN 11.02: "Wildlands: Their Protection and Management in Economic Development" (June 1986). Provides discussion of justification for protection, the Bank's involvement to date, policy guidance, and design of wildland management areas (WMAs). Annex titles are: Categories of Wildland Management; Some Tropical Wildlands of Special Concern; [inclusion of wildlands management in] the Project Cycle; Physical Inputs required in Most WMAs [supplies, staffing, facilities]; and Wildland Survey and Management Form [sample]. Will be replaced by OD 4.00, Annex D.

37. OPN 11.03: "Management of Cultural Property in Bank-Financed Projects" (September 1986). Provides United Nations definition of cultural property, discussion of Bank policy, and guidance for procedure. Will be replaced by OD 4.50.

On Project-Level Guides for Environmental Sustainability

1. The World Bank's OD on environmental assessment states that sustainability is a requirement that Bank projects must meet. "The purpose of EA is to ensure that the development options under consideration are environmentally sound and sustainable...." (OD 4.01, October 3, 1991 [para 2]). Note that this language does not treat sustainability as one value to be traded off against others in an economic analysis. Rather it states that the "development options under consideration", i.e., all the options to be compared must be sustainable, so whatever is not sustainable is not even to be included among the options to be ranked economically. Some guidance on the operational meaning of sustainability was given in OMS 2.36, (May, 1984) in para 9a under the general heading of The Bank's Environmental Policies: "The Bank endeavors to ensure that each project affecting renewable natural resources (e.g., as a sink for residues or as a source of raw materials) does not exceed the regenerative capacities of the environment."

2. The stringency of the above requirements may sound extreme on first reading -- as if we had abandoned economics as a criterion. Nothing could be further from the truth, however. The insistence that projects be sustainable is in fact the reassertion of the elementary economic principle that capital consumption must not be counted as income. Income is by definition the maximum amount that can be consumed out of the receipts of a project without impairing the capacity of that project to continue producing that amount in the future. A project that exceeds the regenerative capacities of its environment is reducing its future capacity to produce and to that extent is counting capital liquidation or depreciation as income. The World Bank should not be in the business of financing capital consumption. In an era in which natural capital was considered infinite relative to the scale of human use, it was reasonable not to deduct natural capital consumption from gross receipts in calculating income. That era is now past. The goal of a sustainability is the conservative effort to maintain the traditional meaning and measure of income in an era in which natural capital is no longer a free good. At a conceptual level the justification for making sustainability a sine qua non for project eligibility could not be stronger or more conservative. The difficulties in applying the concept arise mainly from operational problems of measurement and valuation of natural capital. These problems are addressed below.

3. The following guides seek to elaborate this principle and extend it to nonrenewable resources in so far as possible. Below are some rules of thumb. It is a matter of judgment for EA teams to apply them in a reasonable way to diverse projects. Where the EA team finds wide divergence from sustainability, it should work with the project designers to narrow the gap as early in the project cycle as possible.

4. In what follows the use of the terms "assimilative or regenerative capacity" should not be taken necessarily to imply that there is a discontinuous threshold of use intensity below which there is no effect on the ecosystem being used. Capacity may be thought of as a current level of a particular ecosystem service beyond which further use will cause unacceptable (e.g., cumulative, irreversible, excessive) degradation of the ecosystem and loss of its future services. Also capacity refers to the capacity of the relevant ecosystem, not to individual species in isolation. There are many difficulties in defining sustainable yield and sustainable use, just as there are many analogous difficulties in defining income. But to answer the unavoidable question -- How much can we consume this year without reducing our capacity to produce next year? -- requires that we at least give a prudent rule of thumb. Output Guide

5. Waste emissions from a project should be within the assimilative capacity of the local environment to absorb without unacceptable degradation of its future waste absorptive capacity or other important services. Input Guide

6. Harvest rates of renewable resource inputs should be within re- generative capacity of the natural system that generates them; depletion rates of nonrenewable resource inputs should be equal to the rate at which renewable substitutes are developed by human invention and investment. Discussion: Output Guide

7. If each project obeyed this rule, then the sum of all projects, or the average project, would also conform to the rule. But the average or sum may obey the rule even though each project fails to, as long as there is

compensation among project pairs or other combinations. Of course it is easier for earlier projects to meet this condition than for later ones added after assimilative capacities have been largely used up or even decreased. Once capacity has been reached a new project might be paired with an old one that is removed to make room for it, if the new one is more valuable than the old one. Alternatively the new project may be paired with another new project that makes room by absorbing the waste outputs of other projects up to the amount emitted by the new one. The pairing idea has been discussed by David Pearce, and is a variant of the "bubble concept". Under the "bubble concept" the total emissions for an area must be set collectively, but the market can allocate that total among competing uses by exchange of emission permits. Discussion: Input Guide

8. The inputs of interest are the primary inputs from nature, not the inter-industry or intermediate inputs from other firms. This rule then only applies to the extractive sector, whereas the previous rule applies to all sectors. Inputs from nature are of two kinds, renewable and nonrenewable.

(a) Renewable inputs: The rule is that harvest rates should not exceed regeneration rates. In other words sustainable yield exploitation should be the rule. The sustainable yield concept presents two problems: measurement difficulties, and the existence of many different sustainable yields, one for each possible population of the exploited resource. The measurement problem is similar to that faced by the income accountant -- measuring income in a way that keeps capital (productive capacity) intact and prevents inadvertent impoverishment by over consumption. The point in both cases is to find a prudent rule of thumb to avoid over consumption, not to find the "theoretically unique scientifically precise number." But the rule to exploit at sustainable yield does not tell us what size population of the exploited resource should be maintained in this way. Choosing the population size that gives maximum sustainable yield does not give a sufficient answer, although it is relevant consideration. The economically optimum yield generally does not coincide with the biological maximum yield (they coincide only when harvest costs are constant with respect to the amount harvested). There is no warrant for assuming that the existing population size of an exploited species is optimal. It can be quite reasonable up to a point to cut down forest for farmland. But when we do this we must be clear that the trees from the virgin forest cut in excess of replacement represent capital consumption, not income. If total capital is to be maintained intact the net receipts from the cut virgin timber should be treated as a depreciation fund to be reinvested in some alternative renewable resource that is more valuable at the margin.

(b) Nonrenewable inputs. The rule is to deplete at a rate equal to the rate of development of renewable substitutes. Thus extractive projects based on non-renewable must be paired with a project that develops the renewable substitute. Net receipts of nonrenewable exploitation are divided into two components (income and a capital set-aside) such that the capital set-aside, when invested in a renewable substitute each year will, by the time the nonrenewable is depleted, have grown to a stock size whose sustainable yield is equal to the income component that was being consumed all along. The capital set-side will be greater the lower the growth rate of the renewable substitute (real or biological discount rate) and the shorter the lifetime of the non-renewable reserves (i.e., the reserve stock divided by annual depletion). The logic and calculations have been worked out by El Serafy in the context of national income accounting, but apply with equal relevancy to accounting at the project level. (See S. El Serafy, "The Proper Accounting of Income from Depletable Natural Resources", in Y. J. Ahmed, S. El Serafy, and E. Lutz, *Environmental Accounting for Sustainable Development*.) The true rate of return on the project pair would be calculated on the basis of the income component only as net revenue. Difficulties remain in the question of defining "substitute -- whether narrowly or broadly. Probably a broad definition would be indicated initially -- at least broad enough to encompass improvements in energy efficiency as a renewable substitute for petroleum depletion, and improvements in recycling as a renewable substitute for copper depletion. Further Discussion 0

9. In the case of renewables, capital consumption is treated as depreciation of a productive asset (the sacrificed base population that was producing a permanent yield). Depreciation should be deducted from gross income to get net income. In the case of non-renewable, the reduction of stocks is treated as a

liquidation of existing inventories rather than as running down of capacity for future production, and consequently should not even be a part of gross income, as El Serafy rightly insists.

10. Although the input and output rules of thumb have been treated independently, it should be noted that, thanks to the law of conservation of matter-energy, the reduction of inputs to a sustainable yield level will help in the reduction of outputs to a sustainable absorption level. But "given the spatial separation of input production and output disposal, and especially the generation of many new and toxic substances in the production process, the output rule cannot be avoided. Nevertheless the mere fact of mass balance would lead us to suspect that in some cases the input rule will be binding and the output rule redundant, and in other cases vice versa.

11. Some writers have advocated the pairing rule in theory, but have backed off in practice. For example, in *Blueprint for a Green Economy*, Barbier, Markandya and Pearce state: "at the level of each project such a requirement would be stultifying. Few projects would be feasible." The authors advocate applying the principle at a program, multi-project level, so that the non-degradation of natural capital stock criterion would only hold on the average for the set of projects in the program and not for each project. This may be a sensible modification from an administrative standpoint, but seems to sacrifice efficiency by "socializing" the costs of sustainability among all the projects in a program instead of making each project bear its own full marginal social opportunity cost -- a principle eloquently defended elsewhere in their book.

12. In any event it is not sufficient to say that sustainability is a macroeconomic criterion that is irrelevant at a project level, unless we are able and willing to limit the aggregate throughput of matter-energy (by severance taxes or depletion quotas) to a flow volume that is within gross regenerative and absorptive capacities of a country. In this sense a macro approach to sustainability may be the best strategy. Since all projects would have to pay the same prices, which then would reflect the cost of sustainability in the aggregate sense, there would be no cost in efficiency from socializing the costs among various projects in a program by non-price means. Also, applying the rules at a project level requires a lot of micro level information and interference.

13. Although the macro approach seems better from the point of view of a country applying a national policy, the micro or project-level rules may be the more relevant from the point of view of a development bank that is committed to sustainable development as a criterion governing its own lending, but which is not in a position to dictate national policies at the macro level. Of course imposing macroeconomic policies as a condition for making project loans, or lending directly to finance macroeconomic policy change is exactly what structural adjustment lending does. So one could indeed argue that sustainability ought to be treated as a macroeconomic goal to be attained by structural adjustment, and not as a set of project-level conditions. It could be argued that the proper way to treat sustainability is as a macroeconomic goal to be pursued through structural adjustment or through macroeconomic conditions tied to project lending, rather than as a characteristic of individual projects. Emphasis in this case would then shift from the project-level guides to some analogous macro-level guides limiting the overall resource throughput to within the regenerative capacities of the larger national ecosystem. Because the EA OD focuses almost entirely on projects, this issue is not analyzed further here. But it remains an important question for further reflection and research.