ENVIRONMENTAL ASSESSMENT OF SECTOR LOANS

Introduction

Sector lending is a form of ADB assistance to a DMC for project-related investments based on considerations relating to a sector or subsector as a whole in the DMC. The purpose of a sector loan is to assist in the development of a specific sector or subsector by financing a part of the investment in the sector, planned by the DMC. A sector loan is expected to improve sector policies and strengthen institutional capabilities. Such lending is appropriate particularly when a large number of subprojects in the sector or subsector are to be financed.

At the time of loan approval, the subprojects are usually not known. This makes it difficult to apply traditional environmental assessment techniques. The basic environmental assessment requirements for sector loans are designed to ensure better subproject design and but also include requirements for the ADB to review and confirm of the environmental assessment requirements of sub-loans, as necessary.

The first challenge in environmental assessment and review of sector loan is devising a method for undertaking an assessment of total impact of all subprojects to be financed. In many cases, the subprojects are small and the likelihood of significant adverse impacts from any one subproject is low. However, a large number of subprojects to be undertaken in relatively small geographic area in a relatively short period of time may cause significant cumulative impacts. The environmental assessment of sector impacts is directed towards ensuring the cumulative impacts of all the known or unknown subprojects is assessed prior to loan approval.

The second challenge for the environmental assessment and review of sectors loans is to provide an efficient mechanism for environmental assessment of each subproject. If an environmental assessment is undertaken at the sector level, it should be possible to streamline the environmental assessment of individual subprojects. ADB's requirements for IEE/EIA of sample subprojects are also important. The specific results of the sample IEE/EIAs are very useful in determining the appropriate level of environmental assessment requirements for all subprojects to be financed under the loan. Appendix 5 provides the suggested contents for complete reporting on the environmental assessment of a sector loan.

Recommended Approach to Sector Assessment

The procedures for environmental assessments of projects are discussed in part 1 and more information is provided on EIA (Appendix 2) and IEE (Appendix 3). This section presents guidance on how to prepare the environmental assessment at the sector level. The basic analytical steps are similar to all environmental assessments: (i) scoping, (ii) impact identification and assessment, (iii) identification of mitigation measures, (iv) identification of monitoring requirements, and (v) environmental assessment reporting.

Scoping involves 5 basic steps: (i) identifying the environmental indicators; (ii) preparing the development scenario—identifying the range of activities that will be involved in subprojects; (iii) defining the spatial or geographic extent for the purposes of the environmental assessment; (iv) defining the time period over which impacts are to be assessed; and (v) identifying the environmental issues.

Stakeholders. All "stakeholders" – i.e., parties potentially affected by (or otherwise interested in) the project – should be given an opportunity to participate in the scoping exercise. To the extent practical, this should be done as part of the public consultation activities for the project.

Sustainability Indicators. During scoping one must be sure to consider applicable social and ecological objectives and identify potential affected resources, ecosystems, and human communities of concern. Subprojects may occur over a large area and therefore it may be necessary to identify regional issues of concern and select appropriate regional environmental indicators. Research on sustainable development has identified most of the cumulative impacts issues associated with specific sectors (i.e., energy, agriculture, forestry, fisheries, community development, biodiversity, water resource management, wildlife management). Researchers on sustainability indicators have developed appropriate measurement indicators for addressing cumulative impacts. Table 1 provides an example of sustainability indicators that have proven useful for managing forests.

Table 1: Sustainability Indicators for Forestry

Conserving biological diversity

- percentage and amount of area forested
- percentage and amount of interior forest space
- protection of sites of biological significance
- number of known species at risk
- population levels and changes over time of selected species

Ecosystem Condition and Productivity

- natural disturbance and stress by type and severity
- forest stand health

Conserving Soil and Water Resources

- percentage of riparian (shoreline) areas with natural vegetation cover
- buffering capacity and soil acidification

Multiple Benefits of Forests to Society

- production of timber forest products
- regional wood prices
- employment in forest related sectors

Society's Responsibility

- community involvement in sustainable forest management
- implementation of integrated resource management plans
- private land management and conservation programs
- mutual learning mechanisms

Development Scenario. Most methods for environmental assessment work best when the actions or activities are clearly defined. This may be problematic for sector loans where the subprojects are in early stages of planning and the details of many activities are ill defined. In this case, it is often appropriate to use a scenario approach. While they may not accurately reflect what might ultimately occur, scenarios usually give a realistic picture of the scale, scope, and type of planned activities. The key is to describe project activities at the appropriate level of detail. In general, activities need to be described in terms of their location, timing, and magnitude. For example, discharges or emissions of pollutants should detailed in terms of loadings, the temporal pattern of discharge, and point of entry into the environment. For

disturbances to land use or habitat, the areal extent, locations, and temporal pattern of disturbance should be given. For alteration of hydrologic regimes (e.g., flow in a river), the old and new regimes, should be given.

Spatial Dimensions. Definition of the spatial extent and resolution of the assessment area is one of the most critical decisions made in an impact assessment. Often it is not explicitly considered. If this is the case, the information brought forward for assessment may have been collected and analyzed at the wrong scale. It is also possible that critical spatial areas have been completely neglected, and areas where major impacts might occur could be considered to be outside the study area. Reviewing and assessing information is difficult enough without the confusion resulting from failure to define appropriate geographical boundaries and sub-areas within those boundaries.

Guidelines for determining geographic boundaries are difficult to state. Most practitioners accept that the minimum spatial extent should be the geographic extent of the project facilities and activities. It is widely accepted, however, that the impacts of the project may occur at a distance remote from the project site itself. Some ecologically-based considerations often used in determining spatial extent include (i) the home range of territorial species; (ii) the range of migratory species; (iii) the downstream transport in surface waters and movement in groundwater, when considering pollutants in aquatic systems; and (iv) the short, medium, and long range transport based on the atmospheric conditions, when considering atmospheric pollutants. These considerations can extend the geographic extent of the assessment far beyond the immediate vicinity of the project.

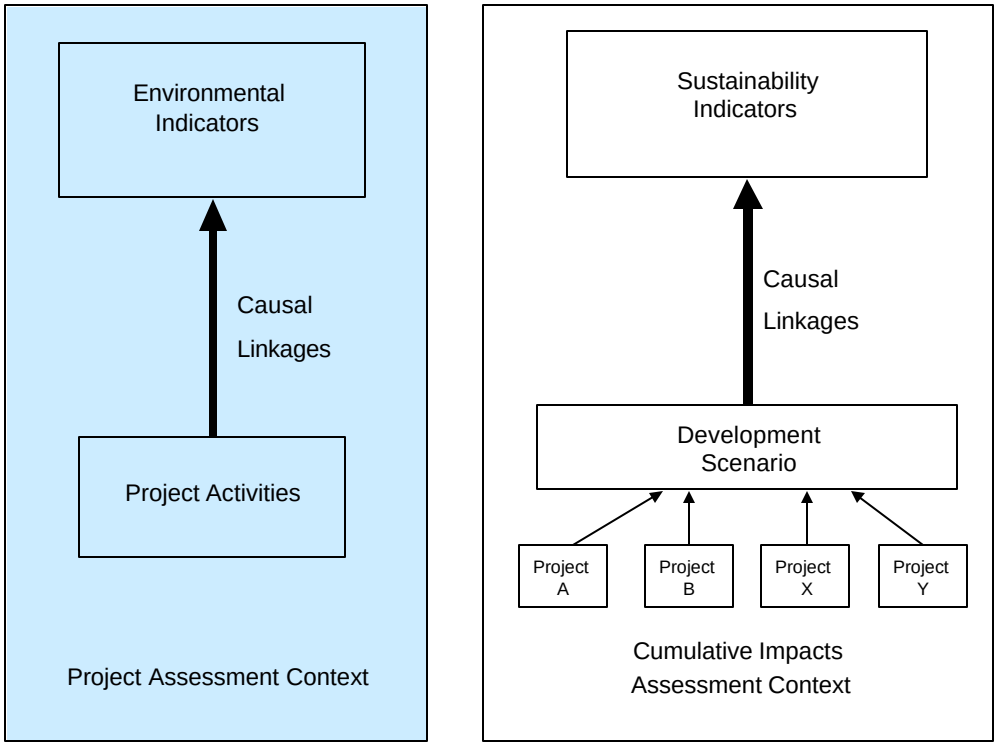
Local Impacts. In many environmental assessments local impacts are of extreme significance. If one chooses a large scale to assess effects, important local impacts may be overlooked. For example, the loss of harvested fish population from one locality may have little impact on the regional fish population, but it is likely to be very important to fishermen in the local communities who rely on the fish population. Because of this, and because not all parts of a large area receive the same intensity of impact, it is usually necessary to divide the larger spatial extent into smaller spatial units. Often there are natural units (e.g., reaches of a river, differing oceanic conditions, physiographic features, and habitat types). In other cases, division may be made on assumptions of intensity of impact.

Temporal Dimensions. Of equal importance to the spatial considerations are the definitions of the temporal horizon and resolution. As a general rule, there is a need to consider a time horizon long enough for the impacts to become manifest. There are a number of important considerations. At a minimum, there is a need to consider the planning horizon and the life of the proposed subproject activities to be able to understand the long-term impacts the project might have. There is also a need to evaluate the life cycle of the animals and plants that might be affected. For long-lived species, it may take two or three generations before the impacts on the population are manifest. Some impacts, such as those related to flooding, erosion, fire, and sedimentation, might only become evident as a result of episodic events. In addressing this, one must consider how the proposed activities alter the likelihood, magnitude, and temporal pattern of these impacts.

Environmental Issues. One convenient and effective way to represent cumulative impact issues is through the use of an impact hypothesis diagram. An ***impact hypothesis*** is an explicit statement that causally relates the effects of project activities to environmental indicators. In a project assessment context (Figure 1) one or more activities are causally

linked to a single environmental indicator. In the cumulative effects context all of the activities in a development scenario are linked to a single sustainability indicator.

Figure 1: Impact Hypothesis in Project Assessment and Cumulative Impact Assessment Context



2. Assessing Impacts

The use of a development scenario, the identification of sustainability indicators, and specification of impact hypotheses provides with the analytical framework to make the overall assessment of impacts. This provides a way of delineating the cause-effect relationships between multiple activities and environmental resources, ecosystems, and human communities of concern. The subsequent assessment depends on careful analysis using proven methods, procedures and tools of environmental assessment.

3. Identification of Mitigation Measures

In designing environmental protection measures reduce or prevent adverse environmental impacts, the assessment should focus on three key aspects relating to subproject selection: (i) recommendations related to the spatial planning for the location of subprojects, (ii) recommendations for criteria to exclude or prohibit activities that may have potential for significant adverse impacts, and (iii) recommendations for proven cost effective mitigation measures to designed into projects and included in the projects budget. These are not project specific mitigation, but rather environmental criteria for future subproject selection.

4. Monitoring Requirements

Environmental monitoring requirements should be based on the environmental sustainability indicators chosen for the assessment. Monitoring for cumulative impacts is not straightforward and can be very costly. To ensure meaningful results there is usually a need for a multi-year monitoring program at many monitoring stations within a large geographic area.

5. Integrating the Results

The sector assessment is a check to ensure that cumulative impacts of the project are acceptable. The results are also particularly useful in determining the environmental criteria to be used in the categorization of subprojects. In course of the environmental assessment of sector impacts most, if not all, of the potential environmental issues would have been identified, the impacts assessed, and mitigation measures and monitoring required discussed.

Environmental Assessment and Review Procedures. One of the most important results is the specification of the procedures for environmental assessment and review of subprojects (see Appendix 6 for the content of the environmental assessment and review procedures. Another important result is the set of summary examples of the potential impacts that might occur as a result of subprojects.