

4 Conditions Internal to Development Assistance Organizations that Perpetuate Inappropriate Technology Choice

Introduction

Some causes for inappropriate technology choices are perpetuated by development assistance agencies themselves. Other, generally more powerful causes for poor technology decisions are problems of values, personnel resources, economic and bureaucratic structures, and economic/financial constraints that exist in developing countries. However, technical, financial, and analytical assistance profoundly influence policies and technology decisions in developing countries. Thus, conditions internal to development assistance agencies can be significant contributing causes of development success or failure.

Although perceptions differ as to appropriate modes of development assistance, a remarkable consensus exists on the major internal factors that constrain an assistance organization's ability to match technologies to development site environmental conditions. A major constraint has been a lack of internal commitment to the concept that renewable resource conservation is a necessary condition for development success. AID, the World Bank and other multilateral development banks (MDBs), and Federal agencies with international activities, have individuals strongly committed to the importance of integrating conservation and development. However, for most development officers this has not been a high priority. Policies and procedures addressing

environmental soundness generally have not come from intellectual consensus within the agencies, but rather have been formed in reaction to outside pressure, particularly from Congress. Internal factors inhibiting an aid organization's ability to consider fully environmental conditions in carrying out development assistance are summarized in Box 4-1.

Box 4-1: General Internal Constraints that Inhibit
Full Consideration of Environmental Conditions
in Development Assistance
(Source: Interviews)

- 0 Agency policies shift often (AID).
- 0 Agency has too many high priorities (AID).
- 0 Few projects last long enough to accomplish significant development goals (AID).
- 0 High staff turnover (AID).
- 0 No career path exists for environment and natural resource professionals (AID).
- 0 Heavy and increasing bureaucratic workloads are compounded by inadequate staff support services (AID).
- 0 Too few in-house staff have knowledge about how technologies interact with ecological and cultural conditions (AID; World Bank),
- 0 Inadequate numbers of staff are professionally trained in environment and natural resources (AID; World Bank).
- 0 Existing in-house expertise in environment and natural resources is underused because of inappropriate assignments and job descriptions (AID).
- 0 Selected contractors often lack strong expertise which facilitates linking technology and environment in developing countries (AID; World Bank).
- 0 Agriculture and environment are not clearly linked by agency structures, procedures, and practices; agencies provide little incentive to link them (AID; World Bank).

Conflicting goals

Several time-driven goals of development agencies operate strongly against allocating the planning time necessary to determine which

technologies are compatible with ecological conditions of the development site. Prominent among these is the need to keep funds moving. For AID, pressures to spend money come from the Department of State, Office of Management and Budget, and from the annual budgeting process--where large amounts of money have to be obligated each year or else they are "lost." For the World Bank, pressure comes from client countries and from organizations providing capital for jointly financed projects.

The goals that influence personnel activities the most are those with deadlines for clearly discernible achievements. Thus, the goal to commit and spend money within a given year can be expected to receive greater attention than the goal to develop a project likely to be successful within the complex workings of the natural resource base, the host economy, and the host society.

Another time-driven goal for development organization personnel, and as a result for their contractors, is to achieve measurable results quickly. For multilateral bank personnel, the pressure arises from the fundamental fact that banks must operate as banks. Even when loan rates are highly concessionary, benefits from investments made with borrowed capital must soon begin to match debt costs. Final evaluations ultimately focus on a project's economic success as measured by the direct economic rate of return.

Even though project officers are strongly aware that their performance on achieving the above-mentioned goals largely will determine their career progress, related goals also are important. In AID,

for example, many officers believe that career rewards accrue to those who can design and initiate numero projects each of which outwardly addresses many of the agency's many priorities. Part of these motivations are perceived to come from Congress, because AID personnel frequently are requested to enumerate projects with objectives that match current congressional and constituency interests. The officer who designs and initiates a project seldom sees it through to completion and is unlikely to be recognized for the ultimate success or failure of the project. Little incentive exists for recognizing mistakes and learning from them.

The time-driven goals can directly preclude sound technology choices. For example, because the ecology of tropical estuary ecosystems is poorly known, sustainable interventions for port development usually cannot be designed without preliminary investigations covering an entire yearly cycle of seasons. But the time-driven goals seldom allow such lengthy preliminary studies, so decisions must be made with incomplete information. Commonly, these decisions are based on the personal experience of the engineer or other technical planner in charge. That experience too often is inadequate to assess correctly how the technology, environment, and local society will interact.

Potential Oversight Questions:

- * Increased interdisciplinary planning might result in more successful development projects. But it might also slow obligation of an agency's budget. What do you perceive as the possible beneficial and adverse impacts on your agency if your actions to improve the number of project successes result in funds remaining at the end of the year?
- * To what extent does your agency use the environmental plans developed under the auspices of the Organization of American States (or other similar organizations) in your project planning process?
- * What other mechanisms allow you to carry out adequate planning without hindering timely expenditure of your budget?

Narrow evaluations and poor feedback

-Development assistance banks' criteria and procedures for evaluating projects also tend to perpetuate the causes of poor technology choice. The overriding bank criteria for project success are narrowly focused financial and economic measures of project benefits and direct costs. External costs may be noted in evaluation documents, but seldom are they weighed against benefits.

The World Bank has been a leader in development of careful financial and economic post-project evaluations. Project sustainability is assessed in financial terms: will necessary continuing investments be made after the funding period ends? In this regard, the Bank's evaluations seem to be thorough, with a significant proportion of projects frankly assessed as either not sustainable or dubious at the time of the final evaluation.⁵ However, Bank evaluations seldom include thorough

⁵ The economic implications of unsustainable projects for the client country, which remains liable for the debt, usually are not addressed.

consideration of environmental or social impacts. Recently, Bank evaluations have been self-critical in this regard. In addition, project impacts on natural resource sustainability commonly are not recognized in World Bank evaluations. A current review of completed Bank-supported dam/reservoir projects may bring increased attention to this issue, as many of the reservoirs are reported to be deteriorating rapidly.

AID objectives and criteria for project evaluations are specified early in the planning process and commonly are broadly stated in terms of institution building processes (e. g., number of extension-agent visits, number of students educated), *or* direct measures of accomplishment (tree seedlings distributed, gains in farm income). Thus, evaluations are not narrowly financial and economic. However, the evaluations seldom are broad enough to identify external effects, or conducted long enough after project completion to determine ecological sustainability. Further, final evaluations seldom address faults with the original problem identification and project design. Yet, this is the time when, with the benefit of hindsight sharpened by project experience, important lessons can be learned.

In spite of their shortcomings, evaluation procedures are institutionalized and the reports generated contain many potentially valuable lessons which could be applied to improve future projects. Also, end-of-project evaluations could be used in a motivation system that would reward development success and provide accountability for development failure. Even so, aid agencies have not learned to use these evaluations effectively. Indeed, negative evaluations tend to disappear due to political pressures and delay.

At the World Bank, post-project evaluations are conducted regularly by an office separate from the project implementing office, Annual summaries of these evaluations are widely distributed in the Bank and used to train Bank staff and client country trainees. Summaries are available for official use in donor and client countries, but are not widely distributed outside of the Bank. A rationale for strictly limiting circulation of evaluations is that, written as frankly as they are, they might embarrass clients or donor country individuals. This, in turn, could hinder efforts to foster policy improvements in client countries or willingness to participate in development assistance. However, distributing the reports more widely might improve the quality of guidance that non-governmental organizations offer the Bank, directly and through Congress.

Nevertheless, feedback from the Bank's evaluations to its project design process seems to be inadequate; similar types of project failure sometimes are identified in subsequent years. Livestock project failures in Africa are an example. Contractors and client country nationals who design Bank supported projects may not be encouraged to study reports from past projects or warned of the economic consequences of project failure to the recipient country.

End-of-project AID contractor reports, written by the organization that implemented the project, commonly contain a wealth of technical detail and often include description of social and environmental causes of project success or failure. Commonly these technical end-of-project reports are short on the analysis and synthesis needed to derive

lessons for future projects. Report drafts are critiqued by the Agency's project officers and other interested parties, and may be revised accordingly. The reports then are filed with other project papers. Technically they are available to host country personnel and outsiders in addition to AID personnel and contractors involved with current projects and preparing for future ones. In practice, they commonly are distributed among technical managers of similar AID projects within the country where they are written, but otherwise are an underused resource. Their shelf-life is far shorter than their potential utility because of narrow distribution, unwieldy length, unattractive format, and lack of editing.

AID's Program and Policy Coordination office (AID/PPC) tracks agency projects, the nature of technologies used in various geographic regions, and many other evaluation parameters. It produces syntheses of project evaluations, drawing lessons from multiple experiences. The number of these syntheses now available not only within AID but to the broader government and non-government community is increasing steadily. However, these are another underused resource. Contractors and host country counterparts generally have little time to study evaluation reports or the unsynthesized end-of-project technical reports for projects in which they are not personally involved. Thus, the agency continues to reinvent some successes and repeat some mistakes. Finally, AID has no formal program for re-evaluating completed projects at a time long enough after completion to learn the real determinants of sustainability.

Potential Oversight Questions:

- * Does your agency conduct post-hoc evaluations of its development assistance projects? If so, for what kind of projects are such evaluations conducted? How long after project completion does such evaluation occur? What have such evaluations revealed about how to change development assistance to increase the likelihood of interventions being ecologically, culturally, and financially sustained?
- * How would an analysis of your existing evaluation reports benefit your agency and Congress' ability to cooperate in development of foreign assistance policy?
- * Does your agency conduct generic program evaluations? On what subjects has it completed these evaluations (e. g., irrigation; rural development)? What changes have been made in subsequent programs as a consequence of lessons learned?

Inappropriate staffing

Development assistance agencies' technical staffs were comprised mainly of agronomists and engineers during the 1950s and 1960s. By the mid- 1970s, technical specialists decreased in number on agency staffs and, especially at the Banks, economists began to dominate. More general types of development assistance began to compete with technical project assistance.

Awareness of the potential for environmental conflicts also arose in the early 1970s. Subsequently, the World Bank and AID established small cadres of environmental professionals and retained some technical specialists despite the continuing trend towards hiring generalists for staff positions. While project officers often function as generalists, technical experts are contracted for project design, implementation, and evaluation. The generalists, with some support from the small cadre of resource professionals, are expected to have sufficient knowledge to assure

recruitment of appropriate specialists, who in turn will develop the technical and social information and conditions needed for development success.

To enable generalists to carry out this function, detailed guidelines and checklists for environmental evaluation have been developed at the World Bank, other MDBs and bilateral aid agencies. In AID, a sign-off procedure to assure scrutiny of potential environmental effects of projects considered likely to have negative impacts culminates with approval by an environmental officer. AID and World Bank environmental officers further provide advice to project officers on consultant selection and review contractor reports to identify significant environmental issues. However, neither organization has had a sufficient number of environmental officers to assure agency-wide guidance.

Potential Oversight Questions:

- * In your entire professional staff, what are the percentages of officers with degree-level academic training in each discipline, such as economics, agriculture, ecology, forestry, geography, anthropology, medicine, public health, civil engineering, etc.?
- * How frequently have your officers been retrained in the advances of their discipline or cross-trained to learn about scientific advances in biological or physical sciences?
- * What percentage of each of these professional groups are assigned to positions where most of their time is spent applying their special training?
- * Can you provide a list of personnel assigned to environment or natural resource functions that briefly indicates each person's responsibilities and technical qualifications for that position?

Structural and procedural constraints

The primary concept of "environmentalism" during the 1970s was that negative impacts of resource development should be avoided. Thus

AID, the World Bank, and other development agencies did not organize their environmental offices to identify resource development opportunities. Rather their function was primarily to determine which of the planned interventions were likely to have harmful environmental impacts, and to insist on design changes that would mitigate such impacts. Given the compelling time-driven goals motivating most activity in these organizations, it was probably inevitable that the environmental officers would be widely viewed as adversaries and their involvement would be avoided when possible.

Most project or loan officers generally work within well-established time constraints, and thus, various methods have evolved to avoid the in-house environmental officers. For example, a project officer may not find time to cooperate in detailed review of a project's environmental aspects. Environmental staff input can be avoided when recipient country officials, desirous of getting a project started, signify that there are no environmental implications requiring study. In the World Bank, the environment office has had the responsibility to review all project documents, but that office has operated from the sidelines with a minuscule staff compared to its task. It has often not been in a position to provide constructive input to project design and operation.

Potential Oversight Questions:

- * The heavy workloads of your project officers, the deadlines for processing large amounts of money, and the pressures from Congress and others to reach objectives quickly must all discourage full investigation of the likely environmental impacts of projects. Are the kinds of projects likely to need full environmental evaluation avoided to save time?
- * What steps has your organization taken to encourage officers responsible for project identification, design, and implementation to seek participation of in-house natural resource specialists and environmental analysts?

Environmental procedures in AID, being a legal requirement, have had significantly more force than has simple policy at the World Bank. Avoidance of environmental concerns today is difficult in AID. Some years ago a simple statement denying that adverse impacts were likely often could suffice. But the gradual increase in environmental officers with professional expertise has discouraged this practice.⁶

AID officers having environmental charges are located in each geographical bureau and in missions abroad as well as in the central Science and Technology Bureau (AID/S&T). Professional environmental personnel in AID/S&T carry out a number of programs designed to raise environmental awareness among AID personnel and host country decision makers, and to encourage officers in AID bureaus and missions to use environmental analysis early in the formation of development assistance

⁶To avoid environmental regulations, some AID bureaus and missions are reported to have reduced investment in the types of projects that intervene in resource use, such as irrigation development. This results in increased funding for projects such as research and institution building, that are not required to include detailed consideration of environmental effects. Such reactions to environmental regulations, though difficult to document, could have significant adverse impacts on activities needed to address certain natural resource problems.

strategies. Country Environmental Profiles sponsored by AID (see section 6), for example, go beyond the impact assessment level of environmental concern to promote integration of development and resource conservation. Still, with the present structure, AID's continuing progress in integration of conservation and development depends on:

- 1) the extent to which staff exhibit a commitment to environmental analysis and programmatic investment in environmental management as a necessary condition for development project success, or
- 2) AID being "micromanaged" by Congress to force it to consider the environment.

AID activities now seem to focus increasingly on incorporating natural resource considerations into regional and sector strategies, suggesting that AID personnel are adopting the premise that environmental analysis is a necessary element of economic development. The AID/S&T Agriculture Office is leading an effort to develop a new focus for AID agricultural assistance, which explicitly includes maintaining the productivity of the natural resources on which agriculture depends. Another S&T program promotes a cooperative effort among missions in Latin America to focus development efforts on fragile lands. AID/PPC is revising its guidelines for economic and financial analysis of projects to take environmental impacts into account. Finally, the Africa Bureau is working intensively on a development assistance strategy focused directly on natural resources. While some of this activity may be

a reaction to a perceived threat that appropriations will be further earmarked for environment and natural resource purposes, the activities seem largely to be internally motivated.

The causes of poor technology choice are perpetuated not only by structure but also by agency procedures. The weak feedback links between project evaluation and design already have been noted. Other internal constraints on sound technology decisions include:

- o too little permanent staff involvement at the development site;
- o use of consultants and organizations with inadequate technical expertise; and
- o bureaucratic procedures that discourage interdisciplinary collaboration.

Too little permanent staff involvement at the development site

At AID, the size of the bureaucracy is limited strictly in order to control overhead on development assistance spending and in response to a keen awareness of congressional and public concern regarding “bloated” bureaucracies. Thus, each project officer typically manages several projects. These officers design development assistance strategies, oversee project design, manage cash and paper flows to and from contractors or host-country organizations, and assure that evaluations and other procedural steps for each project are on time and complete. These heavy workloads typically prevent their active involvement at the sites of development projects.

Further, AID project officers generally have weak administrative support and restricted travel funds. AID project officers stationed in Washington D.C. cannot use project funds for project management activities, such as travel or secretarial support. These constraints may be less severe in AID's missions, but the existing bureaucratic requirements of managing several projects can keep an officer at his/her desk most of the time. Thus, the amount of time project officers can spend on-site usually depends more on their ability to capture office resources and personal willingness to go into the field than on the management needs of the project.

Potential Oversight Question:

- * How would your organization's efficiency be affected if expenses for staff management of projects, such as direct-hire staff travel to project sites, could be charged against the budgets of the projects?

Use of consultants and organizations with inadequate technical expertise

The procedures and workloads that severely restrict the on-site activities of AID staff increase the likelihood of project failures. Most technology decisions ultimately are made either by contractors or host country personnel. Even where technology decisions rest with host country personnel, contractors often have substantial indirect influence through the options they present. Staff officers write terms of reference for contractors, influence the choice of contractors, modify the terms (or decide not to do so) per suggestions from contractors or host country officials, and approve the contractors' activities. However, with inadequate opportunity for field level involvement, the staff are unlikely to be fully competent for these functions.

The World Bank uses many consulting teams for project identification, design and evaluation, and Bank officers provide lists of potential contractors to client country officials for project implementation. The World Bank maintains a formal consultant roster which can be searched to develop lists of individuals and organizations who seem to meet various criteria of disciplinary and geographic area expertise and development project experience.⁷ AID/S&T has established similar computerized rosters of environment and natural resource specialists appropriate to design or implement projects for developing countries.

In practice, World Bank and AID consultants probably are chosen more often from informal systems based on project and loan officers' experience than from rosters. No mechanical system can be relied upon to judge the all-important personality factors that will determine whether a consultant successfully completes the terms of reference. From the project officer's perspective, the selection of contractors who will complete project design and evaluation jobs on time is critically important to achieving bureaucratic goals. Coupled with the project officer's heavy workload, this usually means using consultants whom the officer or his/her close associates have used previously, and ones that are not likely to cause unexpected delays in moving the project forward.

⁷World Bank consultant rosters favor individuals and firms in OECD countries. This does not seem to be in keeping with Bank policy or with congressional guidance regarding the need for an increased developing country role in the development assistance process.

Officers without appropriate technical backgrounds for selecting technical consultants need to have ready access to in-house technical experts. In AID, this expertise is provided by technically trained AID personnel, in-house contractors, and technical experts loaned to AID by other government agencies through Participating Agency Service Agreements (PASAs. Further, officers are required to seek assistance from the agency's environmental officers where off-site environmental impacts are an issue. World Bank officers also have used expert assistance routinely to choose consultants, but have not been required to seek such assistance from the environmental office. The Bank's reorganization is intended to increase the availability of in-house natural resource and environmental specialists (see Appendix C).

Often, local institutions can be identified and funded to carry out planning and evaluation tasks. International programs through which developing country nationals with ecological qualifications can be located have been sponsored by the United Nations Education, Science, and Cultural Organization (particularly the Man and the Biosphere Program), by the United Nations Environmental Programme, and by such non-governmental organizations as the World Wildlife Fund (U.S. and International), International Union for the Conservation of Nature and Natural Resources (IUCN), and the Nature Conservancy. Some of these, such as IUCN's onservation Data Centers have rosters of experts in developing countries sorted according to skills needed for particular types of development activity. But these mechanisms are now used mainly by European (principally Scandinavian) bilateral agencies.

Bureaucratic procedures that discourage interdisciplinary collaboration

Interdisciplinary planning seems necessary for improved matching of technologies to the natural resource, social and economic conditions at development sites. This depends first on the agency choosing the right group and writing adequate terms of reference, and secondly on the team leader's capabilities. Integration of disciplines often is not achieved because the team leader and project officer have not been trained or lack experience in techniques of interdisciplinary team management and analysis (see Appendix F). Wrong consultants are chosen in some cases, and their interaction is not facilitated; for example, the anthropologist, the agronomist and the economist of a multidisciplinary team may each visit the development site separately.

The need to develop interdisciplinary teams applies just as much to development assistance agency staffs as to consultants. Workloads, bureaucratic structures, and procedures all discourage integrated analyses of development problems and projects. Thus, for example, cooperation between agricultural and environmental personnel largely is inadequate.

This is not just a problem of agriculturalists or economists having learned to view environmentalists as adversaries. University training in natural resource and environmental sciences typically produces technical experts who cannot speak the language of economists and who have only superficial knowledge of agriculture and engineering issues. Thus,

interdisciplinary cooperation seems unlikely to occur without staff incentives and an organizational structure explicitly designed to encourage such teamwork.

Experience with AID's Country Environmental Profiles, with Organization of American States' (OAS) environmental studies, and with development of national conservation strategies in several countries indicates that interdisciplinary teams often can be recruited in the host country. However, a shortage of persons trained in the techniques of interdisciplinary team management, and in cross-sectoral assessment methods (other than economics) is likely to be a significant constraint as development assistance agencies seek to increase use of interdisciplinary techniques.

Potential Oversight Questions:

- * OAS, AID, and other organizations supported by U.S. foreign assistance have developed techniques for interdisciplinary, cross-sectoral analysis of development problems, intervention options, and technology soundness. What part of your organization's assistance strategies, projects, and programs are designed by using these new interdisciplinary techniques?
- * What Participating Agency Service Agreements that are intended to enhance AID's environmental expertise remain in force? How has the usefulness of these PASAs been evaluated? Is AID investigating creation of similar PASAs with agencies not currently participating with AID? Which might be most beneficial and why?