

6 How to Change--- Holistic Approaches

Introduction

Budget cuts, declining technical staff, shifting priorities, and a proliferation of congressional mandates may adversely affect the likelihood of development successes. Thus, without clear expression of Congress' recognition of the importance of matching technologies to local conditions, piecemeal efforts may have only short-term beneficial effects.

Make technology/ecology fit an expressed priority

Congressional concern about transfer of inappropriate technologies can be expressed in new or modified legislation, and at hearings convened for oversight, authorization, appropriation, or confirmation. Through these mechanisms, Congress can identify ecological compatibility as a priority, or even a necessity, for U.S. development assistance efforts. To improve the effectiveness of this guidance, it may be necessary to provide some clarification, ranking or consolidation of the other myriad priorities in development assistance expressed by Congress.

Congress often can stimulate improvements in development organizations' handling of issues such as technology selection without creating new legislation. Informal meetings between Members and AID or MDB officials and follow-up cooperation between congressional and agency staff, reportedly had an important role in the changes in development assistance priorities that occurred during the 1960s and 1970s. This kind of cooperation seems less common today.

A goal of identifying the ecological attributes of a recipient country and basing selection of development assistance interventions on those established parameters could be specifically identified in the Foreign Assistance Act. Such a measure would definitively establish integration of environmental considerations into development assistance efforts as a priority.

Legislation and congressional views strongly expressed at hearings certainly affect priorities in the development agencies. But these priorities are likely to be internalized only if they are views shared by the heads of the agencies. Actions and decisions of high-level agency officials, particularly AID's Administrator and Assistant Administrators, may bring about changes affecting the entire agency. Many past AID Administrators have not had backgrounds that equipped them to recognize the importance of the links between technologies and developing country ecological settings. Thus, confirmation hearings provide an important opportunity for Congress to raise issues and to discern the depth of a nominee's knowledge of and concern for matching development projects and technologies to local conditions in developing countries.

It is during these confirmation hearings that the candidate is first exposed to congressional concerns that relate to his/her new responsibilities, and also a time when he/she may be looking for new ideas. Thus, confirmation hearings are an appropriate place to reinforce the guidance given in oversight hearings and in legislation. Questions at confirmation hearings can indicate clearly what Congress will expect from

him/her later on. Similarly, it is a time when Congress can assess the likelihood of its concerns being addressed, should the official be confirmed.

Encourage research and cautious innovation

Even under optimum conditions, development problems are difficult to solve. To find ways to improve the fit of technologies to local conditions, Congress could encourage the AID Administrator to support related research, and to foster innovation and experimentation in cases where sound theory and gradual implementation can protect technology recipients from the consequences of failure. Experiments would, of necessity, be small-scale activities such as on-farm research and demonstration and would be carefully monitored until their suitability for expansion is clear.

Such small efforts, in aggregate, could have considerable impacts. Today, fewer U.S. foreign assistance dollars are assigned to development assistance activities than in past years. However, international development institutions monitor the activities of similar institutions and, where successes occur, they commonly copy them. Therefore, if U. S.-supported development assistance were to take a clear leadership role in assuring that technologies fit developing country ecological settings, even these diminished funds could have a far reaching impact on other organizations conducting development assistance activities.

Restructure technical resources

A key factor in assuring that development assistance promotes ecologically sustainable technologies is effective use of the technical staff with professional training, experience, and interest in applying technology to developing country needs. Although AID and World Bank have such people, they do not seem sufficiently integrated into all aspects of development assistance (e.g., problem definition, project design, implementation, evaluation and redesign) to assure the highest development project success to failure ratio. This seems particularly true for those projects which involve technology transfer to address developing countries' environment and natural resources problems and opportunities.

Notwithstanding, AID may have the technical staff collectively in its missions and in Washington to increase its overall successes. If AID were to concentrate its knowledge on the various ecological settings in developing countries and on matching technologies to these settings, it seems likely that the physical and biological conditions necessary for sustained development could be maintained. AID could accomplish this by developing in-house, interdisciplinary specialist teams to help screen host country problems and AID-proposed solutions, and to assist field staff in locating technical assistance appropriate to the recipient country's ecological characteristics.

One possible categorization of developing country ecological zones in which AID and the MDBs operate is 1) hot wet lands, 2) arid/semi-arid lands, and 3) high altitude lands. Although differences obviously

exist between the environments and resource systems within these zones (e.g., the Brazilian rainforest is somewhat different than Zaire's rain forest), they are similar enough that technologies compatible with the environment of a given ecological zone are likely to be sustainable when adapted for the same zone in another area. (Of course, political, cultural and economic factors may vary greatly among between areas, potentially rendering technologies incompatible in other ways.)

These ecological teams should include, for example, participation of other technical specialists like agronomists, soil scientists, foresters, hydrologists, anthropologists, geologists, geographers, and ecologists. Grouping AID personnel in this fashion would have the immediate beneficial effect of linking specialists in a close working relationship (e.g., agriculturalists with other environment/natural resource specialists), thus resolving a well-identified communication problem.

A fourth team or office with expertise that overlaps the three ecological zones, such as engineers, economists, health specialists, educators and demographers, would work with the ecological teams on projects. This fourth team would take the lead on technical design and evaluation projects unlikely to have strong interactions with the natural resource base (e.g., projects to improve text books for primary education).⁹

⁹An additional team, less directly related to issues of ecological compatibility, might specialize in projects relevant to urban problems and opportunities.

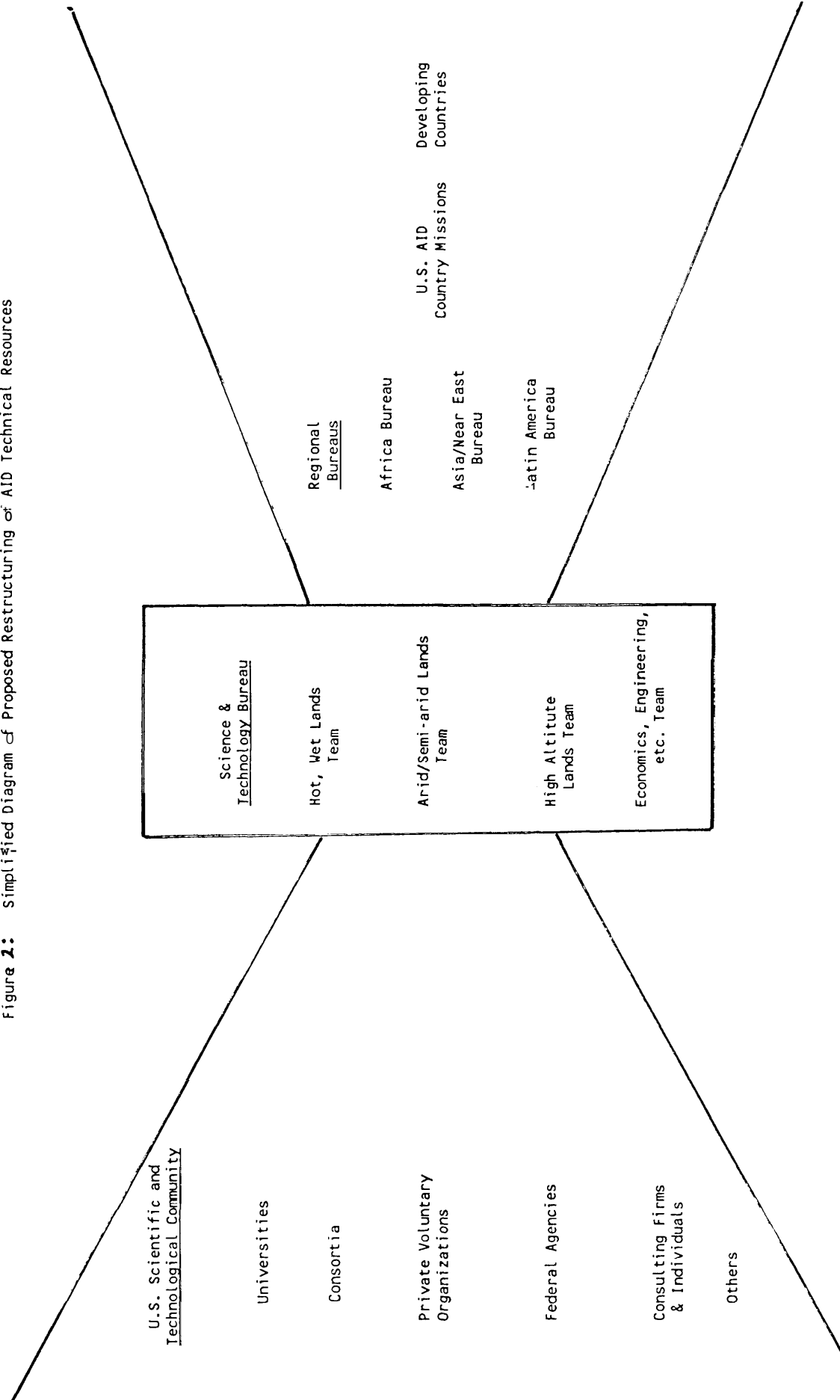
AID could assemble teams from AID/S&T¹⁰ technical staff having appropriate professional training, experience, or interest in the various aspects of natural resources and environment in each ecological zone. So, for example, an agronomist from this Bureau having professional training in dryland agriculture could become part of the team on arid/semi-arid lands; a geographer having many years of experience in Guyana and the Philippines could join the hot, wet lands team; and a new staff member with a general background in hydrology but a strong interest in erosion control might move into the high-altitude lands group.

Where certain specialties might be missing, AID could draw qualified persons from regional bureaus, or from mission staff. Such an arrangement might not require additional AID staff if agency personnel were screened carefully for their appropriate professional training, experience and interest. However, these offices should not be depleted of technical specialists or environmental analysts. A hiring policy aimed at filling vacancies in each ecological team as well as maintaining basic strength in regional bureaus and missions could mitigate potential staffing deficiencies.

Ecological teams could serve as environment/natural resource filters for all proposed projects coming in from the field or arising in AID Washington (figure 2). Each ecological team could examine mission-identified problems and assist in project response development, or review previously prepared plans for their suitability to the development site

¹⁰Some technical specialists view this Bureau as having the largest number of technical staff with the greatest number of years of relevant experience.

Figure 1: Simplified Diagram of Proposed Restructuring of AID Technical Resources



conditions. The team also could help missions identify relevant outside technical expertise and technologies with a strong likelihood of fitting the local environmental conditions and, thus, of achieving the development goal.

The ecological teams (perhaps within a reorganized Science and Technology Bureau) also would be in direct line between the missions/regional bureaus and U.S. technical expertise (e.g., universities, private sector, PVOs/NGOs, and executive agencies' technical resources) further assuring that AID would be unlikely to select and transfer unsustainable technologies to developing countries. Although AID and MDBs structures differ, such teams could fulfill a similar function in MDBs, operating as a "technical filter" between bank regional technical departments and outside technical resources.

This restructuring might be strongly resisted by AID management or the Foreign Service Union because it would require a significant reorganization of AID technical staffs. If this reorganization became untenable, the ecological teams could be implemented (perhaps on a simplified level) in each geographic bureau.

Suggested Oversight Questions:

- * What do you see as advantages and disadvantages of organizing your technical staff into interdisciplinary teams with separate teams for each major ecological zone?
- * Please provide a listing of existing personnel with technical qualifications for these ecological teams. Please indicate technical areas for which no qualified personnel are currently available.

Strengthening technology selection expertise

Increasing developing country capabilities to determine which technologies will fit their own particular ecological setting probably will do more to foster sustainable development activities and help to stem degradation of their natural resources than simply having development assistance agencies ensure the ecological compatibility of technologies used in development assistance projects. AID/S&T, eight years ago, began a few special projects to assist mission and bureau staff as well as developing country planners and natural resource specialists to improve their understanding of interactions between technology and ecology. These projects led to the creation of Country Environmental Profiles (CEPs)

CEPs describe the status of a country's natural resource base and associated problems and potential opportunities for development of the resources. They are used by specialists from developing and developed countries alike in project and strategic planning.

CEPs involve several stages of writing, review and rewriting. Phase-one profiles are desk studies prepared by U.S. experts mostly through library research, followed by Phase-two reports that are supported by AID but largely prepared by host-country experts using outside expertise when necessary. Fifty Phase-one versions are complete; one-fifth as many Phase-two profiles exist. The process provides an opportunity to improve the knowledge base of AID staff, contractors, and host-country counterparts, as well as to increase and strengthen the analytical skills and involvement of developing country environmental/natural resource experts.

Additional AID projects produced comprehensive, individual reports on various ecological settings common to many developing countries; several of these have been published in book format. The reports were produced primarily by teams of U.S. environment/natural resource experts and included separate analyses on: the humid tropics, arid/semi-arid lands, the coastal zone, environment/natural resource planning methods, and case studies of development technologies drawing directly on the natural resource base. Generally, these reports were intended for use by AID bureau and mission personnel involved with project design. However, follow-up training associated with certain topics has been held in developing countries. In addition, experimental computer models were investigated that might facilitate natural resource and environmental planning and research definition in developing countries (see Appendix F). Such efforts by AID and cooperating agencies are important in the process of improving the fit of development technologies to particular ecological settings.

These efforts, though small in comparison to AID's overall activities, address congressional concerns about matching technologies to developing country environments. However, since these are individual projects, they have a defined lifetime. Yet, learning to link the most appropriate technologies to the local ecological conditions of development sites is certainly an ongoing process for U.S. development assistance agencies as well as for developing countries themselves. Expanding, strengthening and building such activities into the on-going development process rather than dealing with them as finite projects may be a promising opportunity to improve technology/ environment linkages.

Suggested Oversight Question:

- * What efforts has your agency made to strengthen technology selection expertise? What results have been obtained? What further actions are being planned?