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Bilateral Donor Agencies and the Environment

Pest and Pesticide Management

Richard J. Tobin
Environmental and Natural Resources Policy and Training (EPAT) Project
Winrock International Environmental Alliance

Technical Paper No. 42
December 1996

USAID

Productive Sector Growth and Environment Division
Office of Sustainable Development
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Contents

Foreword

This report is one of a series of reports on the environmental and economic implications of agricultural policy reform and trade and promotion policies in sub-Saharan Africa completed for the U.S. Agency for International Development's Bureau for Africa. Pesticides are the particular focus of this and related studies. Pesticides are recognized as essential inputs to promote agricultural productivity, but they are also unique among agricultural inputs in the potential risks they pose to human and environmental health. Major economic restructuring has been sweeping sub-Saharan Africa in the past five years, yet little attention has been paid to the implications of these reforms for the use and distribution of pesticides.

Several dilemmas and challenges for the development process have been introduced by the withdrawal of government from a role in the distribution of pesticide inputs and by the associated restructured pricing and subsidy policies. In part, the dilemmas are unique to this subsector, simply due to the intrinsically toxic properties of pesticides, which sets them apart from other agricultural inputs and from other commodities of commerce such as fertilizers. For these reasons alone, pesticides deserve a special examination.

This report is directed at analysts, decision-makers and policymakers having a stake in these issues, in interested governmental and nongovernmental organizations, as well as among donors and international financial institutions. Related reports examine pesticides and the agrichemical industry in sub-Saharan Africa and the implications and consequences of policy reforms vis-à-vis pest management in Cameroon, Kenya, and Uganda.

We hope that this report will assist in the process of changing policies and programs to promote the minimized but responsible use of pesticides and the development, availability of, and access to integrated pest-management technologies. The report's utility for its intended users will determine it effectiveness.

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Acknowledgments

This report is prepared in conjunction with the analytical agenda of the Policy Analysis, Research and Technical Support (PARTS) Project of the U.S. Agency for International Development's Bureau for Africa. The PARTS Project covers a broad range of subjects in agriculture, natural resources, agribusiness, and private-sector development. Walter I. Knausenberger conceived and manages this series of studies on pesticide policy under the leadership of John Gaudet, at that time the Bureau for Africa's Environmental Coordinator (and head of the Environmental Protection Unit), and Curt Reintsma, at that time Chief of the Division of Productive Sector Growth and Environment within the Office of Sustainable Development. The analyses are being conducted through the Bureau's PARTS Project buy-in to the Environmental and Natural Resources Policy and Training (EPAT) Project of USAID's Bureau for Global Programs, Field Support and Research.

The report reflects interviews with officials in the institutions responsible for official development assistance in France, Germany, Japan, the United Kingdom, and the United States. All the informants are due thanks for their cooperation and interest. Not only did these informants provide valuable assistance during the interviews, but many also responded to subsequent requests for clarification and further documentation. To the extent possible, the text reflects the source of statements and conclusions. In some instances, however, informants asked that they not be identified; in other instances critical or potentially sensitive comments from informants appear without attribution for obvious reasons.

Several officials in each country were asked to review the chapter that discusses their assistance programs. Comments were received from representatives of the five countries, and all of their substantive comments are reflected in this report in a way that fairly and accurately represents their concerns and suggestions. In addition, three pest-management experts with considerable experience in developing countries, Walter Knausenberger and Robert Hedlund of USAID and Janice Jensen of the U.S. Environmental Protection Agency, read the entire report. To the extent that there are errors of fact or misinterpretation of informants' statements or reviewers' comments, the author assumes full responsibility. In addition, readers should be aware that the report does not necessarily reflect USAID's opinions.

The author appreciates the considerable assistance received from representatives of donor agencies in the five countries as well as all the reviewers. Most important, acknowledgment is due to Walter Knausenberger whose support, direction, and encouragement contributed to the successful completion of this report.

This report has appeared under the same title as an output under Delivery Order no. 18 of the EPAT Project (Tobin 1994).

Executive Summary

This analysis examines the policies of bilateral donor agencies in regard to the environmental consequences of policies designed to promote agricultural trade or production in sub-Saharan Africa. Rather than examining all potential environmental consequences of such policies, the analysis focuses on the relation between such activities and their potential implications for pest management, the use of pesticides, and integrated pest management (IPM).

Traditional forms of donor assistance have emphasized specific and geographically discrete projects, such as the construction of roads or health clinics. However successful these projects are, they do not address the root causes of economic stagnation that retard development. Consequently, many donor agencies have shifted their emphasis to program aid or nonproject assistance. Such assistance is not directed at specific development projects but rather at policy and institutional reforms, both at the macroeconomic level and in certain sectors, including agriculture. All the donor agencies discussed in this report support provide one or more forms of nonproject assistance, each of which is intended to change a government's policies in order to encourage development.

The effects of nonproject assistance can pervade an entire economy and are rarely subject to donors' direct control. This characteristic of policy-based assistance is potentially significant in regard to assessing impacts and consequences, which become more difficult to predict and observe and, crucially, to link directly to the assistance.

Given this characteristic of nonproject assistance, many donors find themselves accountable for the identification and mitigation of the environmental impacts of their activities in developing countries. Demands for such accountability are probably well placed. Nonetheless, accepting an obligation to be environmentally conscious does not imply rigorous compliance with such an obligation or even agreement on what the obligation involves. This quandary provides much of the justification for the present study. Increased reliance on policy-based assistance increases pressures to address environmental impacts responsibly, and difficulties in identifying and monitoring these impacts underscore the desirability of examining the policies of donor institutions in regard to assistance for agricultural trade and promotion.

Donors' assistance often focuses on policy reforms designed to stimulate agricultural production and the development of crops for export. Success with such ventures is typically associated with intensification of production and increased reliance on agricultural inputs, including pesticides, which can contribute to increased productivity. This study thus focuses on pesticides, pest management, and opportunities to manage pests in the context of IPM and examines these questions: What environmental policies or procedures govern donors' efforts to stimulate agricultural trade or promotion policies in Africa? If obligated to do so, how do donors attempt to identify and mitigate the potential adverse environmental impacts of their policies designed to stimulate agricultural trade and production? If environmental conditionality is a component of nonproject assistance in the agricultural sector, how is it monitored and enforced? To what extent do donors consider or encourage reliance on IPM as a viable strategy for pest management?

To address these questions in comparative perspective, interviews were conducted with representatives of institutions with responsibility for bilateral development assistance in France, Germany, Japan, the United Kingdom, and the United States. The institutions share similar developmental goals, but they differ in their institutional evolution, approaches to development, adherence to ideological preferences, and the need to be responsive to domestic constituencies. Perhaps more important, as this study indicates, donors embrace different perspectives on the role of

agrichemicals in stimulating agricultural production in an environmentally sustainable manner. This statement is applicable to other development institutions, such as the World Bank, the African Development Bank, and the International Fund for Agricultural Development, but they are not discussed in this report due to constraints on the author's time and resources.

An increase in agricultural production is a priority for Africa's economic development. Raising the production of land already cultivated offers the best opportunity for much of the region. One route to intensification relies increasingly on pesticides. When intensification is associated with the production of crops for export, the incentives to use pesticides can be exceptionally strong. However desirable pesticides may be, their use creates a risk that additional agricultural production will be neither sustainable nor environmentally benign.

Bilateral donors have responded in different ways to the challenges and opportunities associated with efforts to promote agriculture in sub-Saharan Africa. For years donors supported recipients' efforts to provide pesticides at subsidized prices and, in many instances, without charge to farmers. Although such subsidies are gradually being eliminated in conjunction with sectoral and structural adjustment programs, donors retain considerable influence over the choice of pest-management strategies in many developing countries. As an illustration, Japan donates agrichemicals upon request from many African countries. Japan is thus one of the largest sources of pesticides in Africa; in some countries Japan provides as much as 75 percent of all pesticide imports. Japan's assistance program imposes few substantive conditions on recipients and places primary responsibility upon recipients for the consideration of the potential environmental impacts of the usage as well as for monitoring any outcomes. In contrast, the U.S. Agency for International Development (USAID) is disinclined to donate pesticides to developing countries, except in emergencies. With one exception, USAID has not donated any pesticides as part of nonproject assistance since the mid 1970s. Among the five countries examined, the United States has the oldest and most detailed provisions for environmental assessment.

France, Germany, and the United Kingdom all sponsor considerable research on and technical assistance related to the improved management of pests, and the three countries are hesitant to donate pesticides. Germany and the United Kingdom occasionally do so but only after consideration of potential environmental consequences. France no longer donates pesticides for routine agricultural use, and it appears to have the least developed procedures for environmental assessment in the context of both project and nonproject assistance.

Despite differences in approaches to pesticides (and IPM), there are many unfulfilled opportunities for enhanced cooperation among donors. Informal dialogue does occur, but a common agenda and approach are absent. The consequence is that bilateral donors, though seeking similar goals, occasionally frustrate or duplicate the efforts of other donors and provide mixed signals to governments and farmers in developing countries. Given the size of the donors' programs and their emphases on transforming African agriculture, such a situation is deleterious to donors and recipients alike.

Glossary of Acronyms and Abbreviations

2KR	Second Kennedy Round of trade negotiations
ATP	Aid and Trade Provision (United Kingdom)
BMZ	Bundesministerium für Wirtschaftliche Zusammenarbeit (Federal Ministry for Economic Cooperation) (Germany)
BPH	Brown plant hoppers
CDC	Commonwealth Development Corporation (United Kingdom)
CCCE	Caisse centrale de coopération économique (Central Fund for Economic Cooperation) (France)
CFD	Caisse française de développement (French Development Fund)
CIP	Commodity Import Program (United States)
CIRAD	Centre de coopération internationale en recherche agronomique pour le développement (International Cooperation Center for Agricultural Research for Development) (France)
DFA	Development Fund for Africa (United States)
EA	Environmental assessment
EC	European Community
EIS	Environmental impact statement
EMEMP	Environmental Monitoring, Evaluation, and Mitigation Plan
EPA	Economic Planning Agency (Japan)
FAC	Fonds d'aide et de coopération (Aid and Cooperation Fund, France)
FAO	Food and Agriculture Organization
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit (German Agency for Technical Cooperation)
IEE	Initial environmental examination
IMF	International Monetary Fund
IPM	Integrated Pest Management
IRRI	International Rice Research Institute
JICA	Japan International Cooperation Agency
KfW	Kreditanstalt für Wiederaufbau (Reconstruction Loan Corporation) (Germany)

MITI	Ministry of International Trade and Industry (Japan)
MC	Ministry of Cooperation (France)
MOF	Ministry of Finance (Japan)
MOFA	Ministry of Foreign Affairs (Japan)
MSEPA	Mission for Studies, Evaluation, and Prospective Analysis (France)
NEPA	National Environmental Policy Act (United States)
NGOs	Nongovernmental organizations
NRI	Natural Resources Institute (United Kingdom)
ODA	Overseas Development Administration (United Kingdom)
OECD	Organization for Economic Co-operation and Development
OECF	Overseas Economic Cooperation Fund (Japan)
OTA	Office of Technology Assessment (United States)
PIC	Prior Informed Consent
UNEP	United Nations Environment Programme
USAID	United States Agency for International Development
USEPA	United States Environmental Protection Agency
WHO	World Health Organization

1. Introduction

The primary purpose of this analysis is to examine the policies of major bilateral donor agencies in regard to the environmental consequences of policies or activities designed to promote agricultural trade or production in sub-Saharan Africa.[1] Rather than examining all potential environmental consequences of such activities, the analysis focuses attention on the relation between such activities and their potential implications for pest management, the use of pesticides, and integrated pest management (IPM).

Such an analysis is particularly timely. Donor agencies play a significant role in the economies of many African countries and bear some responsibility for the current state of African agriculture and its typically low productivity (Office of Technology Assessment 1988; Lele 1990). Favored countries find themselves as beneficiaries of well-intentioned largesse and many forms of training and technical assistance. Without exception the goal of development assistance is an end to such assistance; the assistance is intended to allow countries to "graduate" to a level of social, economic, and political well-being to the point where assistance is no longer required. Although donor agencies can point to successes on the African continent (e.g., in Ghana, Uganda, Tanzania, and Zimbabwe), relatively few countries have graduated over the last several decades. Indeed, many African countries have regressed. Their incomes and agricultural productivity have declined while there populations have spiraled. For this and other reasons, donor agencies have reassessed their strategies and approaches to development.

Traditional forms of donor assistance typically emphasized specific and geographically discrete projects, such as the construction of roads or health clinics or other projects designed to eradicate malaria. However successful these projects are (or have been), they do not address the root causes of economic or agricultural stagnation that prevent or retard development. More recently, therefore, many donor agencies have shifted their emphases to what is commonly called program aid or nonproject assistance. Such assistance is not directed at specific development projects but at policy and institutional reforms, both at the macroeconomic level and in certain sectors, including agriculture, in order to promote and encourage development. As an illustration, the goals of some nonproject assistance might include a liberalization of markets, reductions in government subsidies for food and agricultural inputs, or enhancing the availability or effectiveness of credit. The donors' usual expectation is that removal of intrusive government involvement in an economy will spur production and create entrepreneurial activities that either do not exist or that are stifled because of a government's policies.

The World Bank's structural adjustment loans are, perhaps, the best examples of nonproject lending. In addition to policy-based loans that donors provide in support of the World Bank's loans, many donors are also involved with sector adjustment loans, which focus on narrower segments of an economy, such as agriculture or industry.

Whereas project-based assistance has discrete and readily identifiable objectives and outcomes that are reasonably subject to the donors' control, such is not always the case with nonproject assistance. No government willingly cedes responsibility for policy formulation, implementation, or enforcement to foreign donors. Indeed, governments are highly protective of these functions and, to the extent that donors encourage or espouse democratic values, donors will avoid excessive interference with domestic policymaking in countries in which they operate. In turn, however, donors and lending institutions want assurances that their assistance will lead to desired changes in policies and programs and, desirably, to improved social and economic performance. To address these potentially competing preferences, many donors rely on the phased distribution of assistance in installments (or "tranches") that are linked to the accomplishment of mutually agreed objectives. The imposition of conditionalities substantially increases donors' leverage, at least as long as donors stringently enforce

the conditions associated with their assistance or, alternatively, as long as recipients readily adhere to the conditions attached to the assistance.

At least one other facet in nonproject assistance requires attention. Unlike the situation with project-based assistance, where the outcomes and effects of the activity are reasonably observable, such is often not the case with nonproject assistance. Project-based lending tends to have geographically discrete effects; just the opposite obtains for nonproject assistance. The effects of nonproject assistance can pervade an entire economy and, equally important, are rarely subject to the direct control or influence of donors or lenders. This characteristic of policy-based assistance is potentially significant in regard to assessing impacts and consequences, which become more difficult to predict and observe and, crucially, to link directly to the assistance. As the U.S. Office of Technology Assessment (1988, 146-147) once concluded:

> The swift rise in funding for policy reform has outpaced efforts to evaluate its impacts. Programs have been based on hypotheses regarding responses to policy changes rather than on actual responses....Results from initial evaluation have not yet confirmed the theoretical benefits for resource-poor agriculturalists and in some cases have proved the initial assumptions used are wrong.

Although the level of knowledge about the impacts of policy-based assistance has increased since the OTA's observation (e.g., Reardon et al. 1994), analysts still find themselves at a disadvantage when they attempt to relate such assistance to changes in agricultural practices and conditions (Thrupp 1993; Gibbon, Havnevik, and Hermele 1993) and to environmental impacts (World Bank 1994; Rock 1995).

Given this characteristic of nonproject assistance, many donors find themselves accountable for the identification, monitoring, evaluation, and mitigation of the environmental impacts of their activities in developing countries.[2] Demands for such accountability are probably well placed. There are many instances in which donor-funded activities have had significant adverse environmental consequences (U.S. Senate 1990; Rich 1994). Moreover, due to the nature of political and economic development, many developing countries (again, particularly in Africa) do not have sufficient resources or professional expertise to consider the reasonably foreseeable environmental impacts of development activities. Under these circumstances, if donors do not assume responsibility for assessing the potential environmental impacts of their activities, then no one will, or so it can be argued.[3] Unfortunately, as well, some developing nations may be disinclined to consider environmental impacts if such consideration risks the loss or perceived discouragement of development. Finally, advocates of an enlightened environmental policy argue that the standards for environmental quality applied in assisted countries ought to be no less stringent than those applied domestically, for example, in Germany or the United States.

Recognizing or accepting an obligation to be environmentally conscious does not necessarily imply rigorous compliance with such an obligation or even agreement on what the obligation requires substantively. This quandary provides much of the justification for the present study. When used wisely, pesticides represent effective weapons in the quest to manage pests and, thus, to enhance agricultural productivity. Despite the potential appeal and utility of pesticides, the implementation of policy reforms associated with sectoral and structural adjustment programs appear to discourage the use of essential inputs by inflating their costs and reducing their availability (Reardon et al. 1994). The resulting limitation in access to these resources is occurring at the same time that the capacity of both the public and private sector to deal with the special needs attendant to pest management is compromised due to fiscal constraints in the transition period following the adoption and implementation of policy reforms. Likewise, constraints on government budgets and rationalization of bureaucracies prevent or preclude the development or spread of nonchemical means to manage pests (Matteson, Meltzer, and Knausenberger 1995). In the context of pesticides, institutions that are ill-equipped to cope with these issues and challenges place humans and the environment at considerable risk due to the intrinsically toxic properties of pesticides.

In short, increased reliance on policy-based assistance increases pressures and expectations to address poten-

tial environmental impacts responsibly, and difficulties in identifying and monitoring these impacts suggest the desirability of examining the policies of major bilateral donor institutions in regard to agricultural trade and production. The goal is not to make value judgments about the efficacy or effectiveness of these policies, all of which are arguably well intentioned, but rather to identify alternative approaches, to highlight successes, to compare and contrast experiences among the donor community, to identify opportunities for collaboration and further analysis, and to suggest how these policies might be improved. Consequently, after a brief introduction to the state of agriculture in Africa, the analysis will focus on such questions as these:

- What environmental policies or procedures govern donors' efforts to promote agricultural trade or production policies in Africa, and what is the relation between intent and implementation?
- How do donors attempt to identify and mitigate the potential adverse environmental impacts of their policies designed to stimulate agricultural trade and production?
- If conditionality is a component of assistance in the agricultural sector, are environmental conditions included, and how are they monitored and enforced?
- If assistance for agriculture includes the procurement or provision of pesticides:
  a. do donors impose limits or restrictions on the pesticides that are provided and how they are used (including distribution, storage, and disposal)?
  b. at what point in the use cycle do donors' obligations end?
- As donors encourage and African governments to implement policy-reform programs that affect agriculture, to what extent is consideration given to the indirect implications for pesticides?
- To what extent do donors consider or encourage reliance on IPM as a viable strategy for pest management?

To address these questions in comparative perspective, interviews were conducted with representatives of institutions with responsibility for bilateral development assistance in France, Germany, Japan, the United Kingdom, and the United States between October 1993 and June 1994. Appendix 1 lists the people contacted. In addition to the interviews, correspondence and scores of documents, reports, and guidelines were reviewed.

Through their generous assistance programs, these five countries provide the overwhelming majority of bilateral assistance to sub-Saharan Africa. Equally important, all five countries have policies, projects, or programs directly relevant to the promotion of the region's agriculture. To the extent that increased production is dependent on development assistance and its related programs, these countries are the ones that will influence approaches, priorities, and areas of emphasis. For these reasons, the five countries have considerable opportunity to influence the quest for sustainable agriculture in Africa.

The institutions examined in the five countries share similar developmental goals, but they differ profoundly in their approaches to and philosophies about development, adherence to ideological preferences, and the need to be responsive to legislatures, special interest groups, and domestic commercial pressures (see Box A). Perhaps more important, as this study indicates, donors embrace different perspectives on the role of agrichemicals in stimulating agricultural production in a safe and environmentally sustainable manner (see Box B). For these reasons, among others, direct comparison of institutions may not be appropriate; indeed, it may be misleading. As an illustration, some organizations, such as the U.S. Agency for International Development (USAID), have responsibility for policymaking and implementation. Other countries divide responsibility for these functions among two or more organizations.

As the reader will observe, the extent of coverage varies among countries. On the one hand, some donor agencies are more actively involved with issues affecting the environment and pest management than are others and, while the environment is an area of concern to all donors, their policies on environmental assessment are still evolving. In contrast, by way of comparison, most of USAID's procedures for environmental assessment have been in place for almost

Box 1.1 Domestic Politics, Agriculture, and Foreign Assistance

U.S. legislation restricts USAID's ability to support some agricultural activities in developing countries. Section 513(a) of Public Law 103-306, the Foreign Operations, Export Financing, and Related Programs Appropriations Act, 1995 (and similar wording in previous legislative appropriations dating to 1978), prohibits USAID from financing:

> any loan, any assistance or any other financial commitments for establishing or expanding production of any commodity for export by any country other than the United States, if the commodity is likely to be in surplus on world markets at the time the resulting productive capacity is expected to become operative and if the production will cause substantial injury to United States producers of the same, similar, or competing commodity....

Similarly, Section 513(b) prohibits the use of funds for:

> any testing or breeding feasibility study, variety improvement or introduction, consultancy, or publication, conference, or training in connection with the growth or production in a foreign country of an agricultural commodity for export which would compete with a similar commodity grown or produced in the United States....

Other legislation has required the U.S. representative to the World Bank's Board of Directors to oppose Bank loans to developing countries to grow crops for export that might compete with U.S. agriculture (Lele 1987; Mellor 1987; OTA 1988).

In response to these mandates, USAID has issued two policy determinations (USAID 1978a; 1986). The first discouraged the financing of projects involving sugar, palm oil, and citrus fruits. In the second, USAID declared that proposed projects seeking to stimulate the export of crops would be viewed as "important policy issues," thus requiring review by USAID/Washington. This review would consider the: a) crops' export potential; b) magnitude of likely production; c) likely export markets; d) volume of U.S. exports of the commodity; and e) the "U.S. share of the world or regional market that could reasonably be expected to be affected by increased exports of the commodity" (USAID 1986, 2-3). Crops and products that might be subject to such review include cotton, soybeans, tobacco, and leather.

20 years. Accordingly, differences in levels and means of attention to environmental and pest-related issues explain part of the variation in coverage among the countries. Greater attention is also devoted to USAID because of the considerable material available on the subject and to Japan because it is the largest bilateral donor of pesticides in Africa.

On the other hand, the literature on donor programs and the environment varies considerably in coverage and availability. Relatively little material is accessible in English on French assistance programs, and what is available is largely outdated. Moreover, donor agencies can provide glossy brochures that extol their environmental efforts, but these brochures rarely provide much substantive or procedural detail or allow one to assess achievements or accomplishments. Donor agencies also vary considerably in their ability or willingness to provide materials. USAID is subject to nearly full disclosure of its documents and a Freedom of Information Act that mandates the public availability of all but the most sensitive information in the agency's possession. Donor agencies in some other countries do not face such requirements and have considerably less experience with (or enthusiasm for) public disclosure.[4] Given these constraints and the limited amount of time to meet with several of the agencies, this report attempts to present concise but comprehensive summaries of the issues surrounding the environmental and pest-management policies of the five countries, which are the largest and most influential bilateral donors in sub-Saharan Africa.

Box 1.2 Politics, Pesticides, and the Plague of Locusts

Although this study does not focus on the use of pesticides to control emergency infestations of locusts or grasshoppers, it is instructive to note the differing perceptions of donor agencies in regard to the control of these pests. Agricultural experts within donor and recipient agencies who are responsible for decisions about the use of pesticides for locusts and grasshoppers are often the same people who make and implement decisions about the use of agrichemicals in agricultural projects. Discussing the plague of locusts that infested Africa in the mid and late 1980s, the OTA (1990, 65) observed that:

> The most public differences among donors in this recent campaign related to pesticide selection and application methods....Different donors...assessed the locust and grasshopper situation differently and proposed different control strategies—e.g., the highest priority sites for treatment, whether ground or aerial spraying should be done, what types of aircraft should be used, whether or not to emphasize training or environmental monitoring, etc.

2. African Agriculture and Donor Assistance

Bilateral donor agencies devote considerable assistance to increasing the production of food and fiber in Africa. The desired outcomes of such assistance are obvious; increased production of crops for consumption and export will address problems of malnutrition, economic development, and political stability. However desirable it is to provide such assistance, even well-intentioned efforts to expand production can have undesirable effects on the environment and human health.

Agriculture represents the most important source of employment and production in sub-Saharan Africa. In some countries agriculture provides a livelihood for up to 80 percent of the population and, in many countries, produces the largest share of gross domestic production (FAO 1993a). Success in the agricultural realm is important not only because of the need to feed Africa's fertile population but also because of the widespread recognition that agriculture provides the single best (and, perhaps, only) hope for economic development for millions of Africans. An increase in agricultural production is an absolute priority for Africa's economic improvement as well as for continued social and political stability (USAID 1991a). In too many African countries, agricultural production has not kept pace with growth in populations, and per capita consumption has declined. To address domestic food deficits, many African countries have had to encumber themselves with massive debts to foreign lenders, which stagnant economies prevent Africans from repaying.

There are several explanations for Africa's relatively dismal agricultural production in the 1970s and 1980s, but public policies that discouraged production are among the most important. In various forms such policies overvalued exchange rates, subsidized consumer prices at farmers' expense, and authorized governments to monopolize agricultural trade. As Stryker and Baird (1992, 423) explain:

> These policies led in many cases to highly distorted economies in which goals and services were allocated by administrative decisions rather than by markets responsive to relative prices. Frequently, these economies were characterized by a dual price structure in which prices on the free market were much higher than official prices prevailing in the public distribution network. This gave rise to extensive rent-seeking activities to the detriment of more directly productive economic activities. Institutional structures and business procedures became seriously distorted.

Given the policy-based explanation for Africa's agricultural problems, nonproject assistance that attempts to alter the distortions that result from flawed policies would seem to provide an appropriate remedy. Indeed, as already suggested, donors now funnel much of their assistance through sectoral adjustment programs and other forms of nonproject assistance in order to "correct" policies affecting agriculture in sub-Saharan Africa. These programs attempt to encourage sustainable agricultural growth so that consistent supplies of food are available to whomever needs them. Other programs attempt to increase or introduce the production of high-value cash crops for export. Recent research (e.g., Oehmke and Crawford 1993; Gardner and Reinstma 1994) suggests that many of these programs have met with considerable success in Africa and that the economic benefits of investments in African agriculture are often significant.

In years past increased production could be achieved through the traditional African method for doing so—expansion of the land under cultivation rather than increased productivity per hectare.[5] Unfortunately, as urbanization and population growth in Africa increase at unparalleled rates, this option becomes less viable and more environmentally harmful. Furthermore, as increasing concern for the protection of biological diversity and tropical forests leads to the protection of ecologically vital habitats, there is further diminution of land available for agricultural expansion. Consequently, raising the production per hectare of land

already cultivated offers the best opportunity for much of sub-Saharan Africa (Fontaine 1991). Such an approach will require changes in existing agricultural practices or technologies, and prior research has demonstrated that farmers' adoption of new practices involving inputs is often dependent on agricultural policies (FAO 1993a).

In other parts of the world, intensification of agriculture has been achieved through improvements in irrigation or increased use of new seed varieties. These alternatives offer mixed prospects for success in Africa. Frequent droughts, generally flat landscapes outside of East Africa, and inconsistent supplies of water often preclude expanded irrigation in Africa, especially for small landowners. Due partially to Africa's ecological conditions, new seed varieties are not always available; when they are, African farmers often face unequal access to them. In addition, due to policy reforms associated with structural adjustment in many countries, the price of seeds has increased whereas access to credit to purchase them has decreased (Reardon et al. 1994).

An alternative route to intensification relies increasingly on pesticides (see Box 2.1). Intensification implies reliance on monocultures, reduced fallow periods, elimination of crop rotations, and increased use of fertilizers, all of which create ideal conditions for the development of pest populations (Kiss and Meerman 1991; FAO 1993a; Farah 1994) and deteriorating environments.[6] When intensification is associated with the production of crops for export, the incentives to use pesticides can be exceptionally strong. In fact, pesticide use is closely correlated with the production of high-value crops for export (OTA 1988; Thrupp 1993; Szmedra 1994). Crops such as rice, cotton, maize, fruits, and vegetables account for the bulk of pesticide use (FAO 1993a). When these crops are intended for export and thus important to national economies, governments typically are unwilling to risk disruptions in production. In Kiss and Meerman's (1991) words, African "governments often encourage high levels of pesticide use through subsidies and other incentives at considerable national expense on the misguided premise that there is a direct correlation between levels of pesticides used and crop yields."

Pesticide subsidies create a potential dilemma for donors. Through such means as easy access to credit, reduced rates, or tax exemptions, subsidies allow farmers to obtain pesticides at less than their real costs. Subsidies typically encourage overuse and consumption of pesticides that would not otherwise occur while discouraging consideration of alternative pest-management strategies, including IPM (Repetto 1985; Waibel 1993; Farah 1994). Such subsidies are frequent targets of donor-assisted policy reforms.[7] Excessive use of pesticides is never desirable, but one may wish to remain open-minded about their use in Africa. Perhaps no other part of the world suffers such devastating losses to pests as does Africa (Geddes 1990), and in some countries more than half of all

Box 2.1 When Should Pesticides be Used?

There are no widely accepted rules about when pesticides should be used to manage pests, but the FAO (1992, 1) has provided this advice to its staff:

> The protection of plants from pests (insects, fungi, mites, other micro-organisms, weeds, vertebrate pests, etc.) is an integral part of agriculture. The presence of pests, however, does not automatically require control measures, as damage may be insignificant. When plant protection measures are deemed necessary, a system of non-chemical methodologies should be considered before a decision is taken to use pesticides. Suitable pest control methods should be used in an integrated manner and pesticides should be used on an as-needed basis only and as a last resort component of an Integrated Pest Management (IPM) strategy. In such a strategy, the effects of pesticides on human health, the environment, sustainability of the agricultural system and the economy should be carefully considered.

production is lost to weeds, diseases, and pests. Efforts to manage these problems are thus imperative, and pesticides are likely to be a cornerstone of such efforts.[8] If subsidies are removed or lowered substantially and prices rise, many subsistence farmers may find that their already low use of pesticides will decline even further, thus hampering efforts to increase productivity through intensification. Having noted this expectation, it is also important to observe that the removal of subsidies does not always support the conventional wisdom about their impact on consumption (see Box 2.2).

The removal of subsidies can have other important consequences that must be considered. As an illustration, some researchers argue that the removal of subsidies for inputs diminishes agriculture's productive capacity in Africa (Lipton and Paarlberg 1990; Netherlands Ministry of Foreign Affairs 1991). Research in Thailand (Barbier and Burgess 1992) revealed that higher prices for agricultural inputs increased the demand for new cropland, and research in Ghana (World Bank 1994b) found that increasing agricultural prices (which would be associated with increases in the cost of production) had the same effect. Research for USAID (Johnston et al. 1992) suggests that when reliance on pesticides increases productivity, pressures for extensification are diminished. In contrast, to the extent that farmers find themselves depending on the use of unsubsidized pesticides, these farmers are likely to rely on cheaper, locally formulated, outdated products whose patents have expired (FAO 1993a). Many such pesticides are among the most persistent and environmentally harmful of all pesticides.

In contrast, to the extent that farmers or commercial agricultural estates are able to rely on modern pesticides, they will find themselves dependent on active ingredients created or manufactured in the developed world. All of the world's largest agrichemical companies have their headquarters in Europe, Japan, or the United States. These companies are thus subject to the regulation of the same governments that make decisions about policies on foreign assistance. This situation thus provides donors with potential opportunities to influence the use of pesticides in developing countries (Szmedra 1994).[9]

However desirable pesticides may be, their use creates a risk that additional agricultural production will be neither sustainable nor environmentally benign. The use of pesticides in developing countries is frequently associated with inappropriate training related to the application or disposal of these pesticides. The flawed use and disposal of pesticides also places in jeopardy not only farmers and their neighbors living near treated areas but also nontarget species, including those that may be natural enemies of the unwelcome pests. Contamination of groundwater can also occur. Given the increased opportunities for inappropriate or marginally discriminate use of pesticides and public policies that overtly encourage or subsidize their use, the prospects for environmental damage cannot be ignored. This problem is com-

Box 2.2 Can the Removal of Subsidies for Agricultural Inputs Increase Their Consumption?

Contrary to conventional wisdom, removal or reduction of subsidies does not always lead to higher prices and decreased consumption. Subsidies are associated with a government's involvement in the purchase, sale, and distribution of inputs. Governments in many countries are inefficient and many are prone to corruption, and these factors can raise the cost of subsidized inputs. In addition, budget constraints in developing countries often limit the volume of inputs that governments can acquire, thus limiting use of the inputs. In contrast, when governments remove subsidies and cede responsibility to the private sector, which has an incentive to be efficient, prices might actually decline. USAID's experience with policy reforms in Senegal and Cameroon provide evidence of this phenomenon (USAID 1991b). The World Bank's (1994a) research found that when subsidies for fertilizer were lowered in Malawi and Tanzania, supply constraints were eased and consumption increased. In Nigeria, massive subsidies have led to fertilizer shortages because the government could not meet the demand.

pounded when one recognizes that the institutional structure overseeing the use of pesticides in many African countries is among the weakest in the world.[10] Despite these potential difficulties, little research has examined the social or environmental costs associated with the intensification of agriculture (Capalbo and Antle 1989; Antle and Just 1991), and much of the literature that does exist is of limited relevance to Africa. In a related observation, Louis Emmerij, president of the OECD's Development Council, asserts that there is limited awareness of the impact of structural adjustment programs and their new economic rules on the supply and use of agricultural inputs (Fontaine 1991). Moreover, few studies examine the relations among donor assistance, policy-reform initiatives, and strategies for managing the pests that too frequently devastate Africa's agriculture.

Without an increased awareness of these linkages, Africans risk seeming success with short-term increases in agricultural productivity but long-term environmental damage. Such damage will diminish any hope of sustained agricultural growth and impose unacceptable health and environmental costs on Africa and its residents.

Having identified an undesired alternative, namely the indiscriminately increased use of pesticides, it is important to recognize a far more desirable alternative—integrated pest management. IPM attempts to maintain pest populations at levels below that which causes economically significant losses (Natural Resources Institute 1992a). IPM emphasizes the minimal use of pesticides while maximizing natural regulating mechanisms, both biological and cultural. The social, economic, agricultural, and environmental benefits of IPM are well described elsewhere (e.g., USAID 1990; Kiss and Meerman 1991; Natural Resources Institute 1992a) and need not be repeated here.

Despite IPM's inherent advantages and acknowledgment that it can contribute to environmentally sustainable agriculture, IPM is not used as extensively as its merits would suggest. This is particularly true in developing countries. There are many reasons for this situation, including research that often is too theoretical and that devotes too little attention to the feasibility of implementation (Natural Resources Institute 1992a). Farmers must assume a key role in implementing IPM, but their decisions to do so are subject to many influences, including domestic and donor policies that either encourage or discourage IPM's use. Research to date indicates that implementation of IPM requires a favorable policy environment, and that IPM benefits from active government support and commitment. As an illustration, subsidies for pesticides, regulation of cropping practices, appropriate pricing systems, and support for credits and inputs, all of which are subject to a government's control and donors' influence, affect the adoption and effective utilization of IPM.

In short, efforts to increase agricultural productivity and profitability in Africa present both challenges and opportunities to donor agencies, governments, and the private sector. Challenges arise because pesticides seemingly offer a quick fix to low levels of productivity whereas efforts to intensify African agriculture risk further exploitation of many ecosystems that are already overstressed. Moreover, some research suggests that concerns for ecological sustainability are virtually absent in efforts to modernize agriculture in developing countries (Development Cooperation, Ministry of Foreign Affairs 1993). In contrast, increased dependence on policy-based assistance creates opportunities for donor agencies to influence decision making through the use of conditionality and the provision of financial resources to facilitate the introduction of policy reforms that rationalize the use of pesticides, discourage or eliminate the use of subsidies that encourage excessive pesticide use, and increase reliance on IPM. Having made this point, it is equally important to emphasize that policy-based assistance is not intended to be permanent. Its success will lead to its demise. Accordingly, such assistance should be viewed as a phase that parallels or precedes the efforts of governments and the private sector in developing countries to create and strengthen indigenous capacities in the agricultural sector.

In addition to reliance on nonproject assistance, donors can also increase their support for research on and extension of IPM through traditional project-based assistance. As Meltzer, Matteson, and Knausenberger (1994) observe, without "investments in research, development, and extension to identify

and promote alternative pest-management practices and technologies, there is little chance of altering existing, undesirable patterns of pesticide use in any meaningful way." Such recommendations are common, but successes with IPM in most developing countries are equally uncommon, particularly in sub-Saharan Africa (Natural Resources Institute 1992a; Knausenberger, personal communication, 1994).[11]

3. France

Perhaps more so than any other major bilateral donor, France concentrates most of its foreign assistance in Africa, particularly among those countries that have long-standing historical ties to France. Although France no longer has any colonies in Africa, colonial ties still explain much of what France does with its assistance and how it organizes it administrative arrangements for distributing this assistance.[12]

These administrative arrangements are complex. As one recent USAID (1992a, D-4) analysis observed:

> French assistance is administered by a bewildering variety of ministries and agencies with little apparent coordination. There appear to be three separate assistance programs, each with its own independent policies, applicable to specific recipient countries depending on the nature of their relationship with France during the colonial period.

This complexity discourages generalizations about the overall nature of French assistance. Nonetheless, any attempt to understand this assistance requires some discussion to explain the different responsibilities of the major actors in France's assistance program. Both geography and the nature of assistance determine administrative responsibilities.

On the one hand, France makes a distinction among organizational responsibilities based on the type of assistance provided. Some agencies have responsibilities for loans and others for grants and technical assistance.

On the other hand, France also makes a distinction between ambit (le champ) and nonambit (pays hors champ) countries. The former include 30 countries in sub-Saharan Africa and seven in the Caribbean.[13] Among the former French colonies in this group, ambit countries (e.g., Burkina Faso, Côte d'Ivoire, and Senegal) achieved independence peacefully and thus remained loyal to France in the transition to independence (Claus 1992). This loyalty is reflected in the distribution of French assistance, which totaled $7.9 billion in 1993 and which heavily favors former French colonies in sub-Saharan Africa. In all but one of these countries, France has traditionally been either the largest or second largest donor. As an illustration, of all such assistance provided to sub-Saharan Africa in 1988-89, 95 percent was given to ambit countries. Equally significant, about two-thirds of all French assistance goes to sub-Saharan Africa, which is far above the norm for other bilateral donors. The nearly 100 nonambit countries are primarily in Asia, North Africa, and Latin America, but several African countries (e.g., Ghana, Kenya, Tanzania, and Zimbabwe) are also included in this category, presumably because they do not have any historical or colonial ties with France.[14] Table 3.1 attempts to summarize the division of these responsibilities.

As the figure suggests, the Ministry of Cooperation (MC) provides technical cooperation, budgetary support, and project aid, which is financed and administered through the Fonds d'aide et de coopération (FAC). The MC also has some responsibility for French military assistance. All of the MC's assistance is in the form of grants to ambit countries. In the early 1990s, the Ministry had about one thousand employees, with approximately one-quarter of these attached to French embassies in about 30 recipient countries. In nonambit countries, the Ministry of Foreign Affairs' Directorate General for Cultural, Scientific, and Technical Relations has comparable responsibilities and thus provides technical cooperation in such places as Tunisia, Algeria, and Morocco (USAID 1992a).

Until 1990, the French Development Fund (the Caisse française du développement, or CFD, which was then known as the Caisse centrale de coopération économique, or CCCE) provided capital loans to the public and private sector only in ambit countries. Since that date, however, the bank has also provided project aid, subsidies, long-term, low-interest loans, and sectoral- and structural-adjustment assistance in support of economic and social development to ambit countries and certain nonambit countries, primarily

Table 3.1 The French Development Cooperation System

Type of Assistance	Ambit Countries	Nonambit Countries
Technical and cultural cooperation, grants and subsidies	Ministry of Cooperation	Ministry of Foreign Affairs
Concessional loans or Treasury loan agreements	French Development Fund*	Ministry of Economic Affairs

* Formerly known as the Central Fund for Economic Cooperation (CCCE).

in Africa (plus France's overseas territories and departments, Laos, Cambodia, and Vietnam).

The bank had approximately 1,600 employees in early 1994, with about half of these working in 42 overseas field offices that are separate from and independent of French embassies and diplomatic staffs. These offices have considerable responsibility for project design and policy dialogue (Wilson 1993). To complicate understanding of France's foreign assistance efforts, the CFD disburses resources from the FAC, implements some FAC projects, administers some subsidy programs on behalf of the Ministry of Foreign Affairs, and occasionally combines its financial resources for assistance activities with those of the Ministry of Foreign Affairs.[15] Finally, the Ministry of Economic Affairs provides loans and food aid to nonambit countries, guarantees the CFD's structural adjustment loans, and is responsible for multilateral development cooperation, with the exception of those agencies associated with the United Nations. The Ministry of Foreign Affairs has responsibility for the latter.

The division of responsibilities along functional and historical lines has several important consequences. First, policies and procedures governing the implementation of French assistance can be considerably different in adjacent countries. As one commentator (Claus 1992, 27) has observed:

> For each group of countries there are specific strategies, specific administrative structures and specific instruments. One could almost speak of separate French development policies for three categories of countries. This is not undisputed in France.

This situation is exacerbated in the absence of a comprehensive legislative mandate or strategic framework that governs French assistance and of a single agency with responsibility for the assistance. Efforts to overcome this deficiency have floundered in the past (Claus 1992; USAID 1992a; Wilson 1993), but there does seem to be considerable desire to rationalize and reorganize the existing aid structure (OECD 1994b).

Second, having at least four institutions responsible for assistance frustrates efforts to achieve effective formal cooperation among the institutions. In its assessment of the operations of other donor agencies, as an illustration, USAID (1992a, D-5) noted that at the field level:

> there is no comprehensive cooperation policy, and the conflict of interests between foreign policy, development policy, and external economic policy has not been resolved. At the embassies each policy has its own representatives, assigned and controlled by their respective ministry. They are subordinate to the Ambassador, who wields considerable power but is unable to coordinate their activities.

Despite the absence of formal coordinating mechanisms, there is regular and considerable informal cooperation, which is achieved through secondment from one agency to another and through interagency representation on several committees that decide the allocation of assistance (Claus 1992; Castaing, personal communication, 1994).

Third, the existing structure fosters an independent approach to development. The French parliament provides multiyear appropriations with minimal use of earmarks, and funds remain available until used. In contrast to the ministries that are dependent on such appropriations, the French Development Fund raises most of the funds it needs for loans through national and international capital markets. This arrangement

increases the CFD's autonomy and reduces the government's influence in determining the CFD's borrowers as well as its policies and preferences.

Finally, division of responsibility among four organizations discourages effective collaboration or cross-fertilization of ideas (OECD 1994b). Experience gained in the ambit countries, for example, is not readily transferable to nonambit countries (or vice versa) even when the issues are similar.

FRENCH ASSISTANCE AND DEVELOPMENT PREFERENCES

France's bilateral assistance and technical cooperation tends to be limited to relatively few sectoral areas, namely health, education, agriculture, rural development, and public infrastructure. The loan portfolio is much more varied and does not concentrate on any particular sectors.

French development assistance relies on both project and nonproject assistance. Prior to 1990, nonproject or program assistance was provided through the French Development Fund for:

- structural adjustment loans to ambit countries to accomplish reforms in agriculture and banking;
- structural adjustment loans coordinated with those of World Bank or other lenders to both ambit and nonambit countries; and,
- special structural adjustment loans on a bilateral basis.

The first category of loans was the most popular. For the five-year period beginning in 1985, for example, slightly over $1 billion was provided for all adjustment loans; of this amount, over 80 percent were devoted to structural adjustment loans to ambit countries.

Significant changes were made in France's approach to nonproject assistance in 1990, largely as a result of consultations with African recipients. For the poorest countries, all program or nonproject assistance has been in the form of grants since 1990. Middle-income countries continue to receive structural adjustment loans with interest rates capped at 5 percent. Likewise, the distinction between budget subsidies (formerly provided by the MC) and assistance from the French Development Fund have been abolished. Eligible countries now receive a single assistance package that the Fund implements.[16]

Regardless of the format of the assistance, it has several common features. Despite some past reluctance to attach conditions to French nonproject assistance (USAID 1992a; Wilson 1993), this attitude is changing. All nonproject assistance is now provided in the context of adjustment programs, and (since 1989) the assistance is conditioned on compliance with precise timetables that specify the reforms or restructurings that are supposed to occur in exchange for the assistance.[17]

In the absence of compliance, further support is delayed or withheld. To assist in compliance, technical assistance is frequently provided.[18] Ambit countries in sub-Saharan Africa remain the largest beneficiaries of nonproject assistance. In contrast, nonambit countries tend to receive nonproject assistance in the form of food aid or schemes to reorganize external debts.

FRENCH ASSISTANCE, THE ENVIRONMENT, AND PESTICIDES

France is an active participant in international fora on the environment and, for example, proposed the establishment of the Global Environment Facility. At the bilateral level, France has also increased its attention to environmental issues, albeit in a way that differs from the approaches of other donors.

In 1989, both the MC and the French Development Fund decided to give increased attention to environmental issues. This decision led to a directive requiring that potential environmental impacts be considered at every stage of the project cycle. The two institutions are supposed to conduct studies on the environmental impacts of projects that the OECD (1986) believes can have major impacts on the environment. Few such assessments had been conducted previously, even on projects involving roads, dams, or mines.

Along with the procedural changes, an environmental representative covering both institutions was appointed, but no single office was given responsibility for monitoring the environmental implications of French assistance. In contrast, increased attention was given to staff training, and responsibility for environmental issues was initially given to whatever official happened to be managing a project.[19]

More recently, in 1991, the MC established an administrative office for natural resources and the environment. This office has not produced any guidelines for environmental assessments (Crépin, personal communication, 1994), but every project appraisal is required to discuss potential environmental impacts. Having mentioned this requirement, it is important to note that most of the MC's grant-financed projects tend to be small. The typical range is from $1 to $3 million; presumably, in the French view, such projects have relatively little negative impact on the environment.

Similarly, there are no special environmental requirements associated with agricultural projects, and the MC has not conducted any studies that examine the environmental impacts of pesticides. There is a ready explanation for the latter situation. The Ministry does not fund or subsidize the purchase of any pesticides for routine agricultural purposes and has not provided any pesticides to combat infestations of locusts or grasshoppers for at least five years.[20] In the words of the director of the MC's natural resources office, enough other donors are already providing pesticides for such purposes, and "there is plenty to do without having to give pesticides" (Crépin, personal communication, 1994).

Like the MC, the CFD does not yet have guidelines for environmental assessment but is developing them. The CFD anticipates that it will have an internal directive that links concern for the environment with all stages of project design by 1995. In the meantime, however, the lack of guidelines is potentially problematic. The CFD does not routinely consider the environmental implications of efforts to increase agricultural production, either through intensification or extensification. The Fund neither imposes any restrictions on which pesticides can be purchased nor attaches any environmental conditions to its loans. Furthermore, as one CFD employee explained, "we do not interfere with the purchase of pesticides...this is the job of the cotton companies and such decisions are made after discussions with appropriate research institutes" (Borderon, personal communication, 1994).[21] The reluctance to impose restrictions on the purchase of pesticides may be tied to the Fund's belief that the successful growth of some crops, such as cotton, requires the use of pesticides. While the Fund is amenable to the use of pesticides, it is not encouraging their use. Indeed, the Fund's focus is moving away from activities that seek to expand production of cotton and toward projects that attempt to develop appropriate facilities and infrastructure (such as new ginning plants).

The Fund is aware of the advantages associated with IPM, but some of its staff believes that IPM techniques are too sophisticated for most cotton farmers in Africa. From the farmers' perspective, they supposedly find IPM difficult to understand, they are resistant to recommendations from research institutes, and they see little or no economic advantage associated with the use of IPM (Borderon, personal communication, 1994). In some African countries the explanation for this perception is linked directly to the ready availability of pesticides. In Côte d'Ivoire in late 1993, as an illustration, farmers could obtain pesticides for cotton without cost to themselves. Indeed, pesticides were so readily available that Ivoirian farmers were selling them to their neighbors in Burkina Faso, but without telling the buyers what they were purchasing (Borderon, personal communication, 1994). This leads to the misuse of pesticides not properly formulated to suit local conditions of pest infestations.

As noted above, the MC and the Fund focus their efforts on ambit countries, most of which are in sub-Saharan Africa. Thus, the MC's and the Fund's environmental procedures do not apply to loans or grants to most of the nonambit countries. For activities and technical cooperation that the Ministry of Foreign Affairs sponsors, it has established an office with sole responsibility for the environment. In contrast, the Ministry of Economic Affairs, through its Directorate

for External Economic Relations apparently does not address environmental concerns or conduct environmental assessments of its loans.

Finally, if the situation in the environmental arena is similar to other topical areas, then French development agencies have devoted only limited attention to systematic monitoring and evaluation (USAID 1992a). The French perspective has been a highly practical one; given limited resources, it is far more important to address problems that field staff can readily identify than it is to spend time or effort completing formal evaluations or project appraisals for the intended consumption of bureaucrats in Paris.

This situation is changing. The Ministry of Cooperation established a Mission for Studies, Evaluation, and Prospective Analysis (MSEPA) in 1989. Each year it assesses French assistance in one or two recipient countries and six to eight assessments for various sectoral activities (OECD 1994b). Independent, multidisciplinary teams are used. The country surveys attempt to be comprehensive in nature; rather than assessing individual projects or activities, the MSEPA examines the role of French assistance in the context of all French activities that relate to the recipient (OECD 1994b). Results of these country assessments are not available to the public. The other major institutions responsible for French assistance also evaluate their activities but with considerable variation in their rigor, scope, and comprehensiveness.

FRENCH RESEARCH INSTITUTES

French ministries and departments often have permanent relations with research institutes working on projects of common interest. In many instances as well, these institutes are responsible for the implementation of technical assistance. Such is the case with pesticides and IPM, so brief mention of these efforts is in order. Perhaps the most relevant of these institutes is the Centre de coopération internationale en recherche agronomique pour le développement (CIRAD, International Cooperation Center for Agricultural Research for Development), which is located in Montpellier. CIRAD has scores of researchers working with French development agencies on approaches to stimulating agricultural production and increasing the quality of products intended for export from Africa. Of necessity, much of this research focuses on pests and their management.

CIRAD's research on cocoa and coffee provides a relevant illustration. Efforts are underway to develop biological pest controls and means to encourage reliance on IPM. Despite these efforts, CIRAD's scientists are not optimistic about prospects for either approach in the near future. Echoing comments frequently heard elsewhere, these scientists believe that IPM is beyond the practical or economic reach of most of Africa's small-scale farmers. As one scientist explained (Duris, personal communication, 1993), IPM is "more expensive than pesticides for all pests affecting coffee." The spread of IPM is extremely dependent on knowledgeable extension workers, but few are to be found in Africa. Unlike their counterparts in Latin America, who often have university educations, extension agents in sub-Saharan Africa typically have only a primary education. In addition to their limited education, some of these agents are amenable to bribery from pesticide distributors and are perceived as corrupt by the people they are supposed to help, at least according to some of CIRAD's researchers.

For many African farmers, pesticides appear to be the weapon of choice in fighting pests. This preference brings with it considerable irony. While declaring that increased use of pesticides is essential for increased production of coffee and cocoa in Africa over the next five to ten years (Decazy and Duris, personal communications, 1993), CIRAD's researchers uniformly acknowledge the significant misuse of pesticides now marketed in Africa. In Burundi and Rwanda, for example, governments have required cocoa and coffee farmers to use pesticides on a calendar basis in July and August. In the former country, farmers that do not comply are fined. CIRAD's scientists also noted many instances in which farmers were spraying pesticides well after the intended target pests had departed. Use of inappropriate pesticides (e.g., DDT, endrin, and heptachlor) is common; lindane is widely available in Cameroon, Côte d'Ivoire,

Ghana, and Nigeria (Decazy, personal communication, 1993). Rarely are there any efforts to assess the environmental implications of using these pesticides.

Efforts to protect farmers from the adverse health effects of the pesticides are likewise difficult. Farmers in Cameroon reportedly object to wearing proper protective clothing even when it is provided free (Matteson and Meltzer 1994b).

CONCLUSIONS

France demonstrates considerable influence in sub-Saharan Africa, and French assistance programs are reflective of this influence. The region is by far the single largest recipient of French assistance and, with the vast array of agricultural research institutes that are affiliated with the government, France is well positioned to provide leadership on pest-management issues. In many instances it has. At the same time, however, the evidence suggests that France devotes less attention to the potential environmental consequences of its assistance than do some other donors. The diversity of French institutions with responsibility for this assistance compounds the problem; no single organization is suitably placed to assume a leadership role in developing appropriate guidelines that would cover all the institutions. To the extent that this situation precludes proper attention to potential environmental impacts, this is an area that would benefit from increased attention from French policymakers.

4. Germany

The organization of Germany's foreign assistance program is relatively straightforward. The Bundesministerium für Wirtschaftliche Zusammenarbeit und Entwicklung (BMZ, Federal Ministry for Economic Cooperation and Development), which was established in 1961, has responsibility for policymaking, the establishment of priorities, development of a proposed budget for foreign assistance, and the distribution of appropriated funds, which totaled $6.8 billion in 1993. In contrast to the BMZ's role, primary responsibility for implementation is divided between the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ, German Agency for Technical Cooperation) and the Kreditanstalt für Wiederaufbau (KfW, Reconstruction Loan Corporation). The KfW is a development bank with responsibility for financial cooperation, primarily through loans and grants.[22]

FEDERAL MINISTRY FOR ECONOMIC COOPERATION AND DEVELOPMENT

The BMZ is relatively small, with a staff of approximately 500. These staff members are divided among two substantive directorates and another, largely administrative directorate. Virtually all of the BMZ's employees are located in Germany. One recent estimate suggests that the BMZ's total overseas staff numbers less than 25 and that these people exercise administrative rather than policymaking functions (USAID 1992a). As a result of its limited overseas presence the BMZ handles consultations with representatives of developing countries through German embassies. These embassies had about 100 people with responsibility for development assistance in 1990.

RECONSTRUCTION LOAN CORPORATION

The KfW's creation predates that of the BMZ. The KfW was founded in 1948, years before Germany began its foreign aid program, in an effort to assist the reconstruction of Germany's industrial base. The emphasis on the financing of domestic industrial capacity remains today; about three-quarters of the KfW's staff of approximately 1,600 work on domestic issues, including efforts to strengthen the economies of the former states of East Germany.[23] The remaining staff focus primarily on the KfW's financial cooperation with developing countries and with the countries of Eastern Europe and the former Soviet Union. Despite this geographic division of responsibility between domestic and foreign activities, overlap does exist. For example, the KfW will provide export financing for long-term loans so that developing countries can import German capital goods and equipment (World Bank 1992; KfW 1993). In addition to such loans, the KfW provides untied grants and loans with federal budget funds to developing countries to finance projects and to improve sectoral conditions through structural aid. Structural or sectoral adjustment assistance is normally tied to similar efforts of the World Bank. To finance projects and programs, the KfW has relied exclusively on grants (since 1989) to the least developed countries whereas subsidized loans are offered to developing countries with stronger economies.[24] The grants and loans are generally intended to increase or better utilize the recipients' industrial and agricultural potential through project assistance (KfW 1993).[25]

Not until the late 1980s did structural or sectoral adjustment loans represent a significant portion of the KfW's portfolio. At least through the early 1990s, most such loans were given to nations in sub-Saharan Africa. The KfW does not have an overseas staff, which compounds the difficulties in ensuring compli-

ance with the conditions associated with adjustment loans. For most projects the KfW engages consultants to assist borrowers with planning and implementing these projects. The KfW relies on its own staff for the appraisal, supervision, and evaluation of projects.

Ownership of the KfW is divided between the federal government (80 percent) and Germany's state governments (20 percent). These governments thus provide share capital, which is supplemented by federal budget funds, bond issues, and borrowing in open markets.

THE GERMAN AGENCY FOR TECHNICAL COOPERATION

As its name indicates, the GTZ is responsible for most of Germany's technical cooperation projects in developing countries. In addition to its primary funding from the BMZ, however, the GTZ, which is a nonprofit corporation that the German federal government owns, can also subcontract with other governments or international organizations to provide technical assistance. Such subcontracting is subject to the BMZ's approval. In addition to the technical assistance that the GTZ provides, it also has responsibility for bilateral food assistance, providing equipment and materials (including agricultural inputs) for the projects with which it is involved, and the coordination of research, development, and dissemination related to appropriate technology (GTZ 1992a; World Bank 1992). The provision of all technical assistance to developing countries is grant-based.

Compared to the other donors' development agencies, the GTZ is relatively large, with approximately 2,800 staff. Slightly over half of these work in developing countries with approximately 4,500 host-country nationals (GTZ 1992a).[26] Of those who work at the GTZ's headquarters, which is near Frankfurt, substantive organization is principally along regional rather than technical lines. A department for planning and development, which includes technical experts, supports the various country departments.

The process of accessing the GTZ's assistance (and, as well, that of the KfW) is similar to the request-based approach used in Japan. Governments that would like to receive the GTZ's assistance submit a proposal for promotion to the local German embassy, which provides an initial appraisal before forwarding the request to the German Foreign Office in Bonn. As with Japan's assistance, therefore, the GTZ's approach is to rely, to the greatest extent possible, on host governments to plan and implement projects.

After an assessment of the foreign policy implications of the proposal, the Foreign Office sends the request to the BMZ, which examines the proposal from a development perspective (GTZ 1992a). Next, the GTZ is asked to assess the project's suitability and feasibility and to decide how the project could be implemented. This potentially lengthy process continues when the GTZ provides its findings and recommendations in the form of a project appraisal to the BMZ, which must decide whether to support the project. If a favorable decision is reached, the BMZ asks the GTZ to submit a proposal and, at the same time, requests the Foreign Office to reach agreement with the host government about the project's goals, the respective contributions of Germany and the recipient, and the terms of cooperation.[27] Once agreement is reached, the BMZ asks the GTZ to begin implementation in collaboration with a partner institution in the developing country. The entire process, from design to implementation, can take as long as four years and is actually more complicated than this brief summary suggests.[28]

OVERALL POLICY ON DEVELOPMENT ASSISTANCE

Through the publication of "Basic Guidelines for the Development Policy of the German Federal Government" in March 1986, the BMZ enunciated as its goal the improvement of the economic and social situation of people living in developing countries. Five years later the BMZ provided greater specificity and announced that it would emphasize creative growth and self help. Thus, beginning in late 1991, the BMZ provided five criteria to guide the allocation of German assistance. These include: a) respect for human rights; b) public participation in a country's political

processes; c) government by the rule of law; d) development of market economies; and e) government actions that are prodevelopment.[29] To operationalize these criteria and to move toward its goals, Germany has thus decided to focus its aid on education, population, the alleviation of poverty, women in development, and protection of natural and environmental resources. In its efforts to address poverty, Germany has identified African agriculture as a sector in need of considerable attention. More generally, agriculture is an important sectoral portfolio within the GTZ but of declining importance within the KfW.

Either through the KfW or the GTZ, Germany provides assistance to about 75 countries.[30] In the late 1980s, about one-third of all German bilateral assistance was devoted to sub-Saharan Africa, and two-thirds of all German assistance typically is provided to countries in the lowest income categories. German assistance tends to place considerable responsibility on recipients (USAID 1992a). This reliance on recipients (and thus decentralization of responsibility for implementation) contrasts with Germany's centralization of decisionmaking, primarily through the BMZ. Given a limited in-country presence, the tendency of many of Germany's assistance projects is to impose rigorous requirements and precise procedures.

GERMAN ASSISTANCE AND THE ASSESSMENT OF ENVIRONMENTAL IMPACTS

Germany has long been an advocate of effective concern for the environment, and such concern has been a policy priority since 1975. In that year the German cabinet issued a resolution on principles for assessing the environmental impacts of federal actions. Five years later, the government issued a major policy paper that outlined it concerns for the environment, but this policy statement did not require an assessment procedure for German-funded projects in developing countries (OECD 1982). Despite the absence of an official requirement for environmental assessments, the KfW developed an environmental checklist in 1972. The GTZ provided all of its consultants and staff with similar checklists in 1983. By January 1988, however, the BMZ declared that all of the KfW's and the GTZ's proposed projects would be subject to an assessment of potential environmental impacts.[31] The purpose of such assessments is to anticipate projects' environmental impacts on human health and the natural environment and then to determine whether harmful impacts can be avoided or mitigated. The BMZ has not prescribed a specific format for assessments, but the GTZ and the KfW have developed internal guidelines to implement the ministry's requirements and both have provided training for their staffs in the use of the tools and methods for environmental assessments.

These requirements mandate concern for environmental impacts throughout the life of a project, not just during its design. Consequently, consideration of a proposed project's environmental impacts typically follows a series of steps, including screening and scoping, environmental assessment, appraisal and ranking, and follow-up during implementation. During the first, informal stage project staff will make an initial assessment of potential impacts based on experience and through reference to the OECD's (1985) identification of projects with potential adverse environmental impacts (KfW 1994b). Although this initial screening is usually completed without involvement of representatives from the country receiving the assistance, written consent from them is the norm. The initial screening also involves development of the terms of reference for the environmental assessment. Within the KfW, responsibility for the initial task is normally given to the project team, which includes members from the country, policy, and engineering departments. When appropriate, the project team can receive assistance from a sectoral policy expert dealing with environmental issues or specialized expertise from the environment and health division, which is part of the engineering department. Within the GTZ, a special staff works with the environment division for scoping and screening (KfW 1994b).

Both the GTZ and KfW usually rely on outside consultants to conduct the investigations associated with the second stage of the review process. The investigation,

which represents the actual assessment of environmental impacts, attempts to forecast, quantify, and evaluate these impacts and then to identify potential means for mitigating undesirable environmental effects.[32] To the extent that local standards are available, they are applied (KfW 1994b). In their absence, German or prevailing international standards are applied.

At the conclusion of the field work and after consideration of other relevant material, an appraisal is made and then a judgment is made about a project's overall environmental effects. The proposed project is then assigned to one of the following environmental categories:

E0 Insignificant environmental impact.

E1 Environmental impact possible or to be anticipated; impact tolerable; no separate measures necessary for environmental protection.

E2 Environmental impact to be anticipated; impact tolerable after introduction of required measures to protect environment; monitoring necessary; risk of unforeseen impact and/or improper implementation and operation of measures is low.

E3 Environmental impact to be anticipated; impact tolerable after introduction of required measures to protect environment; intensive monitoring necessary; risk of unforeseen impact and/or improper implementation and operation of measures is high.

E4 Environmental impact to be anticipated; impact intolerable (GTZ n.d.).

Any project receiving a rank of 2 or higher must provide evidence of a thorough environmental assessment, which is attached to the project's appraisal report. In addition to a discussion of anticipated environmental effects, the assessment report must, for projects in categories 2 or above, identify the planned protective measures and the monitoring and evaluation measures that will be used (GTZ n.d.).[33] Mitigating measures are required for all projects receiving a rank of 2 or 3. Projects receiving a rank of 4, which indicates unacceptable ecological impacts, are either restructured or abandoned (World Bank 1992) and are not pursued unless the governments of Germany and the host country agree to proceed (BMZ 1989).

In the case of the GTZ, this appraisal report is forwarded to the BMZ, which decides whether to support the proposed project. If the BMZ approves the project, the GTZ then works with representatives of the host government to develop an implementation plan, including measures for addressing the damages forecasted in the environmental assessment.

For the GTZ's projects or loans that are supported and when control or mitigation measures are required, they are supposed to be monitored on a regular basis during the project's implementation. In addition to consideration of environmental consequences in a project's design, all other project documents (e.g., semiannual progress reports to the BMZ, evaluation reports, and final reports) must discuss: a) anticipated environmental impacts; b) proposed measures to reduce harmful impacts that were anticipated; c) changes that have arisen; d) the success of protective measures; and e) possible unanticipated environmental impacts.[34] In the event of the latter, additional mitigation requirements can be added during any stage of implementation.

To ensure the effective execution of the environmental-assessment procedures within the GTZ, it established and recently strengthened a Coordination Office for Environmental Protection and Conservation of Natural Resources. In addition to implementing, monitoring, and evaluating the procedures, this office provides advisory services to the technical divisions in the planning and implementation of projects, implements pilot projects related to the environment and natural resources, and liaises with other national and international organizations involved with environmental issues.

Germany's approach to the assessment of potential environmental impacts is both thorough and exhaustive. Concern for the environment is reflected in all stages of a project, from design through final evaluation. To ensure that the GTZ learns from its experiences, it also enters the results of its environmental monitoring into a central data base for ready access by other project managers.

Germany's commitment to environmental quality was further strengthened in the early 1990s when the minister of development cooperation announced that Germany's aid would henceforth emphasize environmental protection as a priority area. This emphasis, the minister declared, would be reflected in increased budget allocations and earmarks. The environment (and poverty) are deemed to be of such importance that countries not otherwise eligible for grants can receive them for projects in these two sectors. Germany has also used debt forgiveness as a means to advance environmental protection. In 1990, for example, Germany agreed to forgive the debts of Ethiopia, Kenya, and Zaire in exchange for an agreement to use local currency for environmental and natural-resource activities. Germany further demonstrates its concern for the environment through the sectoral allocation of its assistance; of Germany's total bilateral assistance in 1990, slightly less than one-quarter was devoted to projects specifically concerned with the environment or natural resources.

In accordance with this environmental emphasis, the German government has declared that it will comply with the FAO's (1990) International Code of Conduct on the Distribution and Use of Pesticides. This decision affects both domestic use of pesticides as well as the activities of the KfW and GTZ (Fleischer 1993). In addition, however, the BMZ has issued guidelines on plant protection and IPM and reemphasized that German assistance will be in accordance with the Code of Conduct. The following paragraphs discuss the implications of the BMZ's decisions for the KfW and GTZ.

The KfW's Pest-Management Poclies[35]

Funds from the KfW can be used to finance the purchase of pesticides in developing countries through commodity aid, structural and sectoral adjustment programs, and sector-related programs although the amounts financed tend to be small. For the first three forms of assistance, a negative list applies because the goods and services to be financed are usually not explicitly specified. For sector-related programs, where goods and services are specified (and where there is no conditionality in respect to reform measures), only pesticides in the World Health Organization's (WHO) classes II and III are acceptable.[36] Although no written guidelines govern a borrower's acquisition of pesticides (and, therefore, do not specifically require compliance with the FAO's Code of Conduct), the KfW does have several procedures to insure proper use of the agrichemicals that are acquired with its funds.[37]

As already noted, all proposed projects undergo an assessment of potential environmental impacts, which consider the potential human and ecological consequences of the use of agrichemicals. If this assessment indicates that the use of pesticides will lead to negative environmental consequences, the KfW will provide assistance to mitigate these consequences. Likewise, before the KfW will allow the use of its funds to purchase pesticides, borrowers must justify their request, demonstrate that the use of the pesticides is consistent with the recipient's national extension policy, provide information on how the products will be stored, handled, and disposed of, and specify who the potential users will be. If the KfW is not satisfied with the responses, it will not finance the purchase of pesticides.

A request for pesticides does not ensure the KfW's responsiveness; some requests are denied (especially requests for pesticides in WHO classes Ia and Ib, which are deemed to be "extremely hazardous" and "highly hazardous," respectively), and alternatives are usually considered. Despite its willingness to consider alternatives, the KfW does not now consider the safety and effectiveness of these alternatives under local climatic and environmental conditions (KfW 1994a).

When asked whether the KfW attempts to ensure that the benefits associated with pesticide use are greater than the direct and indirect health and environmental costs associated with this use, the KfW responded by noting the difficulty in measuring these costs. Consequently, while the KfW is interested in these costs, it is forced to rely on currently available information and to include appropriate advisory services in its packages of financial assistance. Perhaps because of the same difficulties, the KfW does not

attempt to demonstrate that the cost of the pesticides is warranted on the basis of the likely benefits as determined by potential increases in yields and the actual value of the crops. Similarly, like most other donor agencies, the KfW has not evaluated the effectiveness and consequences of using agricultural chemicals or assessed the impacts of pesticides used in agriculture on long-term sustainable development. Nonetheless, the KfW does exercise professional judgment before authorizing the use of pesticides.

When the KfW provides pesticides it does not normally require that they be part of the development or implementation of an IPM program. Despite the absence of such a requirement, past environmental assessments have led the KfW to alter the design of projects involving pesticides. In the late 1980s, as an illustration, the Government of Egypt requested a loan from the KfW to strengthen its agricultural sector. The Egyptians intended to use some of the loan to purchase pesticides. The KfW agreed to allow the purchase of some pesticides, but its appraisal report encouraged reduced reliance on pesticides and increased emphasis on IPM, the creation of a program to monitor the pesticides' use, and ongoing assessments of the economic efficiency of that use (BMZ 1989). For its part, the KfW promoted ground spraying in lieu of aerial spraying, the establishment of thresholds, scouting and wide introduction of ultralow volume spraying, and the training of field staff.

When the KfW's funds are used to procure pesticides, the recipient country is allowed to determine the prices charged and how the pesticides will be distributed to farmers. In both instances, however, the KfW's appraisal will consider these factors, and the KfW will attempt to use its influence to correct distorted prices or to provide additional assistance with distribution if problems develop. Despite these good intentions, the KfW has no mechanism to enforce its preferences effectively unless the consequences of pesticide pricing, handling, and use are so harmful that a termination of the procurement of the pesticides is imperative. Due to the nature of pesticide application (i.e., dispersed application by many users), the KfW's attention to the effective implementation of pesticide-related conditions and environmental consequences is limited and problematic (Pischke, personal communication, 1994). The KfW has not yet financed any activities designed to dispose of pesticides, but it is willing to respond positively to requests for assistance in doing so.

In regard to IPM, the KfW promotes the technology in principal and prefers the approach, but it does not have any permanent staff who are IPM experts (Pischke, personal communication, 1994). The KfW is a lending institution with limited responsibility for technical assistance, so it cannot initiate IPM-related activities unless they are part of one of the KfW's investment programs. For the same reason, the KfW does not finance any training programs related to IPM (Fleischer 1993), it has no plans to establish policies or procedures for the development and use of biological control agents, and it has not examined how nonproject assistance affects opportunities to introduce IPM as an alternative to increased reliance on pesticides (KfW 1994a).

The GTZ's Pest-Management Policies

The GTZ takes a pragmatic approach to the use of pesticides. While recognizing that "it will not be possible to renounce the use of chemical pesticides" in developing countries (GTZ 1992b, 22), the GTZ wants to ensure that such chemicals are used properly. Thus, when pesticides are used in the GTZ's projects, which is infrequent, it attempts to procure them in accordance with the FAO's Code of Conduct. Factors other than price are thus considered in the procurement process. These include product quality, opportunities to reduce risks associated with use, the pesticides' appropriateness in the country of use, and compliance with national and international regulations governing pesticides (Kern 1994). To ensure that pesticides procured through or with the GTZ's assistance are appropriate, the GTZ:

- provides clear technical specifications in tender documents so that proposals can be compared fairly and fully;
- purchases original products in original packaging in ready-to-use formulations from manufacturers that have agreed to comply with requirements in the Code of Conduct;

- provides only those pesticides that are registered for use in the recipient country; and,
- attempts to ensure that the recipient establishes a system to monitor postdelivery transport, storage, and use (Kern 1994).

Appendix 2 provides the process and information requirements that the GTZ imposes before tenderers can procure pesticides using GTZ funds.

As noted above, an assessment of potential environmental impacts will precede a decision to provide pesticides as part of a GTZ project. If the assessment forecasts potential negative impacts, then monitoring and evaluation will be required, but no formal procedures for these processes have been established (Fleischer 1993)

The GTZ's interest in pesticides is not limited to their procurement. Through a range of projects, the GTZ also emphasizes improved management of existing stocks, strengthening and improvement of pesticide legislation in developing countries, enhancement of these countries' capabilities to monitor pesticide residues, the disposal of outdated stocks, and the remediation of areas contaminated by pesticides (GTZ 1992b). Indeed, the GTZ is a pioneer in the focus on pesticides. It began a pesticide service project in 1973, and it continues into the 1990s. This project has focused on pesticide quality and the control of residues, training programs, and assistance in disposing outdated pesticides. In 1979, the GTZ established a worldwide project on the production of natural pesticides, especially neem. More recently, in 1991, the GTZ initiated a separate worldwide project on the disposal of pesticides in developing countries, which emphasizes the registration of aged stocks, the development of suitable disposal techniques, assistance to countries that wish to dispose of these stocks, and methods or procedures to determine when pesticides become obsolete. The disposal project is part of the GTZ's overall program on pesticide management. Consequently, disposal operations are linked to preventive measures to avoid stocks of obsolete pesticides in the future. The GTZ's procedures for the procurement of pesticides reflect this concern.

Finally, in early 1994, the GTZ initiated still another pesticide project, this one focusing on the effects of pesticide subsidies in developing countries. In-depth studies are to be conducted in several African countries plus one in Asia and another in Latin America.

Although GTZ recognizes the need and potential dangers of pesticides, its preference is to rely on biological rather than chemical controls. This has been a long-standing preference; The GTZ has made IPM a central theme of all of its agricultural projects since 1981 (GTZ 1992c). From GTZ's perspective, chemical pesticides are acceptable for use in an IPM approach only after:

> trained local extension workers have made the associated risks and side-effects clear to the farmers. Moreover, crop protection chemicals may only be sprayed if the safety guidelines stipulated in the FAO's code of behavior are observed when trading and using them. It is also important for the pesticides to be of certified quality and adequately labeled (GTZ 1992c).

GTZ is putting these principles into practice in several countries. In the early 1990s, for example, the GTZ had more than 40 plant and postharvest protection projects in developing countries. Several of the projects focused specifically on IPM, with relevant activities in such countries as Argentina, Egypt, Madagascar, and Tanzania. The GTZ initiated a regional project in East Africa on biological controls for fruits and vegetables in late 1993. The GTZ had initiated a research project on the integrated biological control of locusts in 1989.

Rather than attempting to develop new IPM-related techniques, the GTZ's preference is to concentrate on the implementation of existing methods and technologies. This approach has the advantage of low cost, dependence on indigenous knowledge, and relative ease of implementation.

The GTZ's considerable experience with pesticides and IPM has provided its staff with a commendable expertise on pest management in developing countries.[38] Among the lessons it has learned, the GTZ's staff believes that for IPM to be successful, donor agencies must focus on farmers and a bottom-up approach as opposed to agricultural officials and a

top-down approach (Röttger, personal communication, 1993). Despite this conclusion, the GTZ has encountered some difficulties convincing farmers of the merits of IPM because of problems in demonstrating the economic feasibility of the approach. To counter this difficulty, the GTZ is encouraging educational efforts related to IPM among children in some developing countries.

CONCLUSIONS

Germany's assistance program clearly demonstrates a comprehensive awareness of and commitment to the need for appropriate oversight of the use of pesticides in developing countries. Through a wide range of long-term activities involving pest management, Germany has developed a wealth of relevant experience from which other donors can benefit. This experience reflects a pragmatic and comprehensive approach to pest management. While recognizing that pesticides have wide appeal in developing countries, Germany's assistance program emphasizes thorough assessment of potential environmental impacts, careful oversight of these impacts during project implementation, and increased reliance on IPM. In addition, the GTZ can point to a well-integrated pest-management program. Through central management and direction from its headquarters outside of Frankfurt, the GTZ has initiated many relevant activities throughout the world.

Although other donors may have a general sense of Germany's emphasis on and successes with pest management, much remains for these donors to learn from Germany's successes and accomplishments. This conclusion suggests both the desirability of and the opportunity for increased donor coordination in regard to pest management, and Germany may wish to assume a proactive role in initiating this collaboration. Such an effort could lead productively to increased concurrence among donors on policies for the donation of pesticides, the linkages between policy reforms and agricultural inputs, and opportunities to encourage the integration of IPM into activities designed to stimulate agricultural production.

5. Japan

Several features of Japan's foreign assistance deserve attention and help to put its efforts into comparative perspective. First and perhaps foremost, Japan's role in providing foreign assistance has changed rapidly. In the first years of providing such assistance, in the mid-1950s, Japan provided war-related reparations to ten nations in Asia. More recently, the size and geographic scope of this program has broadened to the point that Japan now provides some form of assistance to more than 150 countries, probably more than any other donor. Japan is the largest donor in more than 30 countries and the second largest in more than 20. Asia has long been the largest beneficiary of Japanese assistance; in contrast, Japanese aid to sub-Saharan Africa is substantially below the average of other major donors.

In addition to increasing its scope, Japan has also increased dramatically the value of its assistance. In the first two years of the 1980s, as an example, the average amount of bilateral aid disbursed was $3.7 billion; in 1993, it was $11.3 billion. Japan has been the world's largest bilateral donor since 1991. Significant further growth is anticipated; between 1993 and 1998, planned expenditures for development assistance are expected to total $70 to $75 billion (Yen Aid Watch 1994).

Second, a prevailing Japanese view has been that development assistance should be devoted to activities that stimulate economic growth and encourage private investment (as opposed to projects directed at the elimination of poverty). Consequently, much of Japan's assistance has historically been provided for large-scale infrastructure projects such as the construction of dams, power plants, roads and railroads, cement and fertilizer plants, and facilities for sewage treatment and water supply. Furthermore, Japan distributes its bilateral assistance in response to specific requests from recipients rather than initiating projects and then deciding that they are appropriate for the recipients. This request-based approach, in which Japanese officials often participate, avoids the need to spend considerable resources on the design and development of projects, as typically occurs within USAID. For the Japanese, their approach means that their priorities for assistance coincide closely with the recipients' development policies. Equally important, the approach means that responsibility for the use of the assistance is given to the recipient (Hanabusa 1991).

Third, more so than any of the seventeen other member countries of the OECD's Development Assistance Committee (DAC), Japan devotes a greater proportion of its bilateral assistance to loans than to all other forms of assistance. Among all bilateral assistance provided through these countries in 1991, for example, more than 85 percent was in the form of grants. In contrast, 60 percent of Japan's aid was in the form of loans in that year, and that percentage represented a significant increase over the mid-1980s. Japan's rationale for this preference is straightforward. Japan is willing to assist countries to develop economically, but it also believes that countries should help themselves and must become self-reliant. The repayment of loans demonstrates a commitment to self-help, which is an important ingredient of economic development, at least in the view of the Japanese government.

Due to the preponderance of resources devoted to loans, Japan lags most other DAC members in the amounts allocated to technical cooperation. Whereas France and Germany emphasize such cooperation, Japan devotes considerably less attention to it, perhaps because of language difficulties. Of the technical assistance that Japan does provide, most goes to Asia.

Fourth, the administrative apparatus for Japan's development assistance is complex, at least for an outside observer. On the one hand, there is no single law or agency that governs Japan's assistance pro-

grams, supposedly because of opposition from the government bureaucrats charged with administering the assistance (Forrest 1991). There is also relatively limited oversight from Japan's Diet. The Diet allocates resources to the appropriate ministries and then allows these ministries substantial freedom in determining where the resources will go and how they will be used (USAID 1992a). In addition, the Diet provides relatively little oversight and leaves most policy making to the ministries, an approach that is consistent with the powerful bureaucracies that exist in Japan.[39]

These bureaucrats have traditionally devoted scant attention to long-term strategies, development philosophies, or country development plans. There are several reasons for this, including Japan's request-based approach to assistance, a limited overseas presence (which is discussed below), and annual versus long-term funding for many activities.

On the other hand, the structure of Japan's foreign assistance bureaucracy is potentially perplexing. Indeed, this bureaucracy was described in the early 1990s as "the most complicated and confusing in the world, the only system to have two main bilateral aid agencies, directly overseen by four Cabinet-level ministries, and influenced by a total of 16 ministries and agencies" (Forrest 1991, 24). Among these ministries, the most important include the Ministry of Foreign Affairs (MOFA), which attempts to coordinate assistance policy, and the Ministry of Finance (MOF), which has overall authority for the foreign-assistance budget. Other key institutional actors include the Ministry of International Trade and Industry (MITI) and the Economic Planning Agency (EPA). In addition to these four cabinet-level entities, two other organizations are involved with official development assistance — the Japan International Cooperation Agency (JICA) and the Overseas Economic Cooperation Fund (OECF). Table 5.1 presents a simplified diagram of the relations among these institutions.

The agencies included in Table 5.1 are responsible for approximately 90 to 95 percent of Japan's bilateral assistance. More than a dozen other ministries and agencies (e.g., the Ministries of Posts, Education, and Labor, and the National Police Agency) control the remainder.

Decisions about foreign assistance are highly centralized, and JICA's and OECF's overseas staffs have limited authority in terms of project identification and design. Combined with the request-based nature of assistance, the highly centralized nature of Japan's assistance may provide some explanation for the meager staff resources associated with the administration of Japan's assistance efforts, both in Japan and overseas. Although Japan's foreign-assistance bureaucracy has grown (and the OECF trails only the World Bank in volume of loans), the increase has not kept pace with the amount of assistance disbursed. In 1980, slightly fewer than 1,200 people were involved in all

Table 5.1 Organizational Relations among Japanese Agencies with Responsibility for Bilateral Assistance

Forms of Assistance	Policy Formulation	Negotiations with Host Country	Implementation
Technical cooperation and most grant aid	MOFA in consultation with MOF	MOFA, Economic Cooperation Bureau	JICA
Loans	MOFA, MOF, MITI, EPA (chaired by MOFA)	MOFA, Economic Cooperation Bureau	OECF (with oversight from EPA)

aspects of the administration and implementation of Japan's bilateral and multilateral assistance. Eleven years later, after a 250-percent increase in the amount of assistance committed annually, the aid bureaucracy was less than 40 percent larger. As a consequence the average Japanese aid employee managed almost $9.2 million in assistance commitments in 1991 (compared to $3.7 million in 1980). For field staff, the amounts are significantly higher.

Most people employed in the assistance program work in Japan. The OECF has only 16 field offices, all but three of which are located in developing countries. Less than 50 people staffed these field offices in 1991. Less than one-quarter of JICA's one thousand employees work in developing countries, so most of the agency's employees are administrators with little or no experience in developing countries, especially Africa. One consequence of this sparse staffing is that nearly 100 countries that receive Japanese assistance do not benefit from the presence of Japan's foreign-assistance professionals in JICA or the OECF. As noted below, this situation has important implications for Japanese donations of agricultural inputs.

THE ENVIRONMENTAL BASIS OF JAPANESE ASSISTANCE

Japan announced in early 1991 that four guidelines would govern the distribution of its foreign assistance. These include efforts to promote democratization and market economies, and unfavorable trends: a) in military expenditures; b) in the development and production of weapons of mass destruction; and c) in the trade of military arms. The following year the Japanese Cabinet approved an Official Development Assistance Charter, which reinforces the guidelines but which also adds a governing principle that "environmental conservation and development should be pursued in tandem."

The Charter's emphasis on the environment was not Japan's first or only substantive indication of concern for that issue. Several years earlier the OECF (1989) had published environmental guidelines in which it noted that it had for several years considered the potential environmental impacts of it loans. For the purposes of this report, the guidelines have at least two interesting features. First, rather than the OECF's application of the guidelines, they are intended for use by prospective recipients and "cover those environmental items which should be considered by the Borrower at the stages of project planning and preparation...." (OECF 1989). The guidelines are not mandatory and, consequently, reflect Japan's belief that it should not impose its political goals or policy preferences on recipients (Hanabusa 1991). Policy dialogue and persuasion are the preferred instruments.

Second, the guidelines are intended primarily for large, capital projects, such as those noted above. Of the 16 major sectors addressed, only one, irrigation, is directly related to agriculture. The neglect of agriculture is not surprising. There are few opportunities for large-scale agricultural infrastructure, and the OECF commits only a small portion of its loans to that sector. Moreover, few of these loans are granted to nations in Africa. For these reasons, no further attention is given to the OECF in this report.

JICA did not issue its environmental guidelines on agricultural projects until late 1992 (JICA 1992). These guidelines comprehensively discuss their application to a wide range of site-specific development studies. Such studies represent a discrete area of technical cooperation for JICA and involve pre-investment studies that examine the feasibility of proposed projects or the formulation of master plans for regional or sectoral development. Although the guidelines recognize that increased use of agrichemicals can have negative environmental consequences, the guidelines do not apply to the Japanese program that provides agricultural inputs to developing nations.

GRANT AID FOR INCREASED FOOD PRODUCTION

Japan's foreign assistance takes many forms. Among these, the most relevant to the present discussion is Japan's Grant Aid Program. Through this program, Japan provides financial assistance in nine categories, including aid for food, fisheries, cultural activi-

ties, debt and disaster relief, and increased food production.

A brief review of the development of the latter grant program puts it into perspective and explains its rationale. During the mid 1960s, international negotiations on trade under the auspices of the General Agreement on Trade and Tariffs were informally called the Kennedy Round. One component of these negotiations focused on international trade in grains, including that with developing countries. In an effort to ensure that exports did not have a negative effect on agricultural production or the international trade of these countries, sixteen developed countries, including Japan, devised a Food Aid Convention in 1967 (JICA 1994a). Subsequent international agreements on food aid were negotiated in 1971 and 1980.

Under the terms of these agreements, the signatory nations agreed to provide certain minimum amounts of grains to developing countries each year. Due to Japan's situation as a net importer of food, however, Japan was allowed to meet part of its annual obligation by providing funds that developing nations could use to purchase grain on the world market. To complement its food aid program, Japan established a grant program for increased food production in 1977; this program is often referred to as 2KR aid, after the Second Kennedy Round of trade negotiations. Through its 2KR program, Japan offers such agricultural inputs as fertilizers, agricultural chemicals, and farm machinery to developing nations in Asia, Africa, and Latin America.

Japan's rationale for this grant program is straightforward. The desire to strengthen agriculture in developing countries reflects Japan's historical experience as well as its relatively high ratio of population to agricultural land. In John Mellor's (1989, 9) view, as an illustration, "Japan is the classic case of the use of agricultural development to transform an economy from one that is low income and primarily agricultural into a major industrial power." Japan achieved and maintains this success despite severe limitations on the availability of agricultural land. In the face of a high population density, agricultural extensification is unrealistic. Intensification, in contrast, has been the chosen route to increased production. To achieve this intensification, Japan relies heavily on pesticides, and its farmers use far more per hectare to grow rice than all other nations in Asia to achieve about the same level of productivity (Szmedra 1994; Gallagher, personal communication, 1994).

The 2KR program also reflects Japan's view that it should assist developing nations to achieve their goals. Thus, since shortages of food are typical in many developing countries, Japan seeks ways to assist local efforts to increase productivity. If productivity can be increased, then many shortages can be alleviated. From Japan's perspective, therefore, low productivity is partly due to an absence of sufficient inputs into the production process. Japan's response to this situation has been to provide such inputs, including pesticides. The explicit assumption inherent in this response is that increased agricultural production is at least partially dependent on the use of pesticides. In the words of one recent report, agricultural production cannot be increased "without a certain amount of pesticide application" (JICA 1994c, 1; see also JICA 1993, 1).

The Operationalization of the 2KR Program

The key issues associated with the 2KR program involve the selection of recipients, the kinds of pesticides provided to them, and the environmental implications associated with the use of the pesticides. These issues are addressed in the sections that follow.

Selection of Potential Recipients

In order to be eligible for participation in Japan's 2KR program, potential recipients must be "making self-reliant efforts to increase food production" (JICA 1994b). Once this initial criterion is met, four other factors are considered:

- the situation of supply and demand for staple foods and agricultural inputs;
- the past record of agricultural commodities that Japan has supplied;
- whether the donated products will be used in an "effective way in accordance with a well-defined

plan for increasing the country's food production" (JICA 1994a); and,

- relations between Japan and the potential recipient.

Between 1988 and 1993, 60 countries received some 2KR aid, although not necessarily in each year. Japan has suspended aid to some countries (e.g., Liberia, Sierra Leone, and Zaire) because of political turmoil, violations of human rights, or excessive military expenditures. Of the 60 countries, most are in sub-Saharan Africa (35); Asia has the second largest number of recipients, with 13 countries receiving 2KR aid. The value of the aid ranged from ¥150 million per year to as much as ¥3.15 billion per year. The four largest recipients are Asian nations — Philippines, Sri Lanka, Indonesia, and Pakistan. The data in Table 5.2 illustrate the regional distribution of this aid between 1988 and 1993.

Requesting Assistance

Many nations are potential recipients of Japanese assistance, including Grant Aid for Increased Food Production, but only nations specifically requesting assistance receive it. In Japan's view, this approach insures that the activities associated with assistance reflect the recipient's priorities rather than the donor's. As Koppel and Orr (1993, 9) have asserted, however, this approach "allows Japanese companies to advise the recipient government as to which kind of funding, grants, [and] concessional or non-concessional loans, Tokyo would be most willing to provide."[40] Some anecdotal evidence supports this view; several people interviewed alleged that Japanese pesticide manufacturers solicit potential orders from recipients of 2KR aid. These claims are not readily substantiated. The proportion of Japan's total pesticide exports to sub-Saharan Africa represents less than 5 percent of all of its pesticide exports (Szmedra 1994),[41] but Kuroda (1993) reports that 2KR aid accounts for 90 percent of these exports to Africa.

Whatever the source of encouragement for requests for 2KR aid, the Japanese government insists that it provides only products that these nations have identified, requested, and justified.[42] It is equally important to note, however, that Japan facilitates the process by which countries identify the agricultural inputs they would like to receive.

Japanese embassies provide prospective recipients with a "Standard List," which identifies almost 40 fertilizers and nearly 150 different pesticides (in over 340 formulations) that can be requested. In order to be on the list, a pesticide must be registered with Japan's Ministry of Agriculture, Forests, and Fisheries. The toxicological data required to register a pesticide in Japan are comparable to the requirements in most other developed countries, including France, Germany, the United Kingdom, and the United States. In notable contrast, however, the same cannot be said in regard to test data on the environmental fate of pesticides or their potential environmental impacts on wildlife and nontarget organisms (U.S. General Accounting Office 1993a). As an illustration, the General Accounting Office's survey in 1992 of the registration requirements of 18 OECD countries found that 17 required data from environmental degradation studies, 16 from mobility studies, 14 from dissipation field studies, and 9 from accumulation studies. Japan does not require any of these tests before a pesticide can be registered. Similarly, Japan is the only nation among the 18 that does not require any ecotoxicity studies, which are used to estimate a pesticide's potential impacts on nontarget species, including birds, mammals, aquatic vertebrates, and pollinators (U.S. General Accounting Office 1993a).

The Standard List, which is not intended to be exhaustive, provides an interesting mix of pesticides. None of the pesticides on the Standard List are in WHO's class Ia, which is reserved for "extremely hazardous" pesticides. In contrast, the list contains many pesticides that WHO places in class Ib, which is reserved for products that are "highly hazardous." Among the Ib pesticides on Japan's Standard List are edifenphos, a fumigant, zinc phosphide, a rodenticide, and eleven insecticides: benfuracarb, carbofuran, dichlorvos, fenthion, isofenphos, isoxathion, methidathion, methomyl, monocrotophos, oxamyl, and thiometon.

The inclusion of these pesticides on the Standard List, which one JICA official referred to as a "shop-

Table 5.2 Regional Distribution of Japan's Grant Aid for Increased Food Production, FY 1998-1993 (Hundred Million Yen)

	1988	1989	1990	1991	1992	1993	% change 1988-1993
Asia	132.00	113.00	99.00	100.00	102.00	100.50	+23.9
Africa	97.07	95.42	110.00	126.00	114.00	129.50	+33.4
Middle East	21.50	24.00	21.00	20.00	24.00	16.00	- 25.6
Latin America	25.00	24.50	28.50	28.00	30.00	34.00	+36.0
Oceania	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -
Total	275.57	256.92	260.34	275.50	270.00	280.00	
No. of Countries	38	43	52	51	49	48	

Source: JICA, personal communication, 1994

Note: The Middle East includes Egypt, Sudan, Syria, and Yemen; Africa includes only those nations in sub-Saharan Africa; Oceania includes only Western Samoa.

ping list," is potentially troublesome. When used in developed countries, pesticides in class Ib typically have stringent restrictions placed on their use. When they are used, only specially trained and certified applicators are normally allowed to apply the products, and then usually only with protective clothing or equipment. Indeed, the Ib pesticides are so potentially harmful that the World Bank (1985b, 2) contends "that under no circumstances should [class I pesticides] be made available for use by small farmers or the general public." The FAO (1994) similarly recommends that small farmers or untrained workers in developing countries not use any Ib insecticides under any circumstances. The FAO's Code of Conduct (1990, 13) further recommends that: "Pesticides whose handling and application require the use of uncomfortable and expensive protective clothing and equipment should be avoided, especially in cases of small scale users in tropical climates."

The FAO is more tolerant of the use of Ib fumigants and rodenticides but only under extenuating circumstances, "provided that adequate precautions can be taken for safe handling and that use will occur under strictly controlled and supervised conditions involving trained operators" (FAO 1994). Considerable evidence (e.g., Szmedra 1994; Matteson and Meltzer 1994a, 1994b; Meltzer, Matteson, and Knausenberger 1994) suggests that many farmers in developing areas, especially in Africa, do not or cannot meet these expectations. Given this situation, there is cause for concern. Pesticides provided through the 2KR program are explicitly intended for small-scale farmers and production intended for domestic consumption (e.g., rice, maize, beans, and potatoes), not large-scale agricultural operations producing crops for export (Abe, personal communication, 1994). Perhaps because of the FAO's recommendations and more general concerns about the effects of Ib pesticides, the Ministry of Foreign Affairs and the Economic Cooperation Bureau decided against further donation of such pesticides, beginning in fiscal year 1993. A panel of experts that JICA (1994d; Hemmi, personal communication, 1994) convened recently concluded as well that it is "inappropriate" for JICA to purchase pesticides in class Ib.

In addition to the Ib pesticides, the Standard List contains other pesticides whose use in the United States has been restricted (e.g., alachlor, dichloropropene, fenitrothion, methyl bromide, plus several class Ib pesticides). At least seven pesticides on the List (i.e., ametryn, butachlor, carbosulfan, ethofenprox, fluazifop butyl, propineb, and thiometon)

are not registered for use and cannot be sold in the United States.[43] At least 18 other pesticides on the list (including captan, chlorothalonil, cyanazine, dimethoate, metolachlor, propiconazole, thiodicarb, and trifluralin) have been identified as probable or potential carcinogens (International Access Corporation, 1994).

A far larger number of pesticides on the Standard List are pesticides that the WHO (1994) places in class II, which is reserved for active ingredients that are moderately hazardous. Despite their less harmful nature, the FAO (1994, 3) recommends that class II pesticides be provided to developing countries "only if it can be demonstrated that users adhere to the necessary precautionary measures" and: "The procuring agency may require, as a condition of the contract for the supply of such formulations, that there be adequate supervision at all stages of transport to the final destination and/or storage location."

Once a potential recipient decides what it would like to receive through the 2KR program, a formal request is submitted through diplomatic channels to the Japanese embassy, which then forwards the request to the Ministry of Foreign Affairs in Tokyo. In addition to identifying the desired products, the request must detail the condition of agriculture and food production in the country, identify the target areas of the aid, and provide reasons for the selection of the desired inputs. If the request is deemed suitable, the Ministry of Foreign Affairs seeks approval from the Japanese Cabinet. After the Cabinet's approval, the Ministry of Foreign Affairs arranges an "exchange of notes" with the recipient country. The notes outline the terms of the donation and the recipient country's responsibilities. These responsibilities are largely procedural rather than substantive. As an illustration, a typical responsibility includes the requirement that a recipient government ensure the unloading and customs clearance of the products. Such notes also require, however, that the recipient maintain and use properly the products provided.

Until an exchange of notes is completed, JICA has only an advisory role; all negotiations and deliberations about responding to a request are in the hands of the Ministry of Foreign Affairs (Machida, personal communication, 1994). Although JICA may be involved with the field survey that assesses the need for the requested inputs, JICA's involvement with implementation begins only after an exchange of notes and an agreement that Japan will provide the inputs.

Procurement

Once an exchange of notes has occurred, the recipient government can issue a tender notice. Although some Japanese critics (e.g., Kuroda 1993) have complained that the 2KR program is a poorly disguised means of subsidizing the export of Japanese agrichemicals, any company manufacturing pesticides in a member country of the OECD can respond to a tender notice (Abe, personal communication, 1994).[44] Thus, only about half of all pesticides provided through the 2KR program in recent years were produced in Japan; the rest came from Europe and the United States, at least according to JICA's staff.

Once a supplier has been identified and has provided the products, JICA arranges payment to the supplier. At the same, however, the recipient country is obligated to set aside an amount of local currency that is equal to at least two-thirds of the value of the Japanese donation. These counterpart funds are to be used for agricultural development projects within the recipient country after consultation with Japanese officials. These funds can be used to purchase additional agricultural inputs. In Kuroda's (1993) opinion, however, there is considerable uncertainty about how the counterpart funds are used; he believes that follow-up studies are rarely conducted. JICA's own analyses suggest much the same. In one report (JICA 1994d), a panel of experts recommended the development of more detailed plans on the use of counterpart funds. Existing plans, the panel noted, are not sufficiently accurate to "facilitate the effective and efficient use" of the funds.

Distribution of Pesticides

Once the donated pesticides arrive in the recipient country, the host government assumes all responsibility for their storage, sale, distribution, and dis-

posal. The price is determined in consultation with the Japanese government, presumably through discussions with officials at the Japanese embassy. Matteson and Meltzer's (1994b) research in Kenya, which included interviews with JICA staff in Nairobi, found that the donated pesticides are sold at heavily subsidized prices. The Ministry of Foreign Affairs' internal evaluations of 2KR assistance indicate the same. One such evaluation (Ministry of Foreign Affairs 1993, 35) noted that pesticides donated to Mozambique "are sold to small farmers at cheap prices" through that country's Ministry of Agriculture.[45]

Whatever the means of distribution, the volume of donated pesticides can be large, particularly in sub-Saharan Africa. For example, between April 1, 1992, and March 31, 1993, which corresponds with Japan's 1992 fiscal year, 49 countries received a total of ¥27 billion in 2KR aid. Of this amount, slightly over ¥7.1 billion (or about $57 million) was used to purchase pesticides; ¥7.2 billion for agricultural machinery; and the remainder for fertilizers. As the data in Table 2 indicate, however, the proportion of this aid devoted to pesticides in Africa is far in excess of the average, which was 26.4 percent. In fact, nearly half of all 2KR aid to sub-Saharan Africa in 1992 (or about $44 million) was used to procure pesticides. Of all the program's money devoted to pesticides throughout the world in that year, more than three-quarters was spent to acquire pesticides for use in that region. Twenty-six countries in sub-Saharan Africa requested pesticides in fiscal year 1992, and all but one request was honored, although not necessarily for each specific item in the request.

The major explanation for the preponderance of donated pesticides in Africa reflects the nature of the process associated with requests for 2KR aid. If a country does not request pesticides, it will not receive them. African nations almost always request pesticides; Asian nations rarely do so. Kuroda (1993) suggests that among the nine Asian recipients of 2KR aid in 1991, only Laos and China requested pesticides. The Philippines, which is, by far, the largest single recipient of 2KR aid, has not requested any pesticides in many years.

In JICA's estimation, Japan donated about one-quarter of all pesticides imported into sub-Saharan Africa in the early 1990s. In several countries, however, JICA officials believe that the volume of 2KR pesticides constitute as much as 50 to 75 percent of total pesticide imports. Other evidence (Knausenberger, personal communication, 1994) suggests that in some African countries the percentage may be even higher. In addition, the value of Japanese donations vastly exceeds the FAO's estimate of the total value of all pesticides imported into some of these countries. African countries receiving the largest value of donated pesticides from Japan include Senegal (with an estimated donated value of $4.7 million in 1992), Mozambique ($4.1 million), and Côte d'Ivoire ($3.7 million). Other major recipients, in order of the value of pesticides received, include Niger, Uganda, Burundi, and Cameroon.

Monitoring the Use and Environmental Impacts of Donated Pesticides

Although Japanese agencies with responsibility for foreign assistance have developed requirements for environmental assessments in many substantive areas, Grant Aid for Increased Food Production is not among them. In some respects this is surprising. Japanese officials, including those within JICA and the Ministry of Foreign Affairs, are aware that pesticides have potential adverse effects on the environment (JICA 1994d). As an illustration, JICA's in-house journal on development issues, *Technology and Development*, published an article (Hashimoto 1990) summarizing the recommendations of the OECD's Environment Committee (OECD 1986). The committee had prepared guidelines for the environmental assessment of development assistance projects. Development projects most in need of environmental assessments, observed the committee, include those involving substantial changes in farming and the introduction of agricultural chemicals. Without providing an explanation, Hashimoto (1990, 14) identified these areas as ones "likely to be subject to great resistance domestically as projects or programs most in need of environmental assessments as in the case of developing countries." During discussions with

Table 5.3 Actual (FY 1991, 1992) and Estimated (FY 1990, 1993) Distribution by Region and Input of 2KR Aid (in billion Yen, except where indicated)

	Asia	Sub-Saharan Africa	Middle East	Latin America	Grand Total	US$(mil)
Pesticides						
1990	.55	4.85	.81	.43	6.79	47.2
1991	.56	5.56	.78	.42	7.18	54.2
1992	.48	5.52	.87	.27	7.14	57.0
1993	.47	6.28	.58	.31	7.39	67.2
Fertilizers						
1990	6.27	3.89	.38	1.88	12.44	86.4
1991	6.33	4.46	.37	1.84	13.17	99.5
1992	6.93	4.13	.20	1.37	12.64	100.7
1993	6.82	4.69	.13	1.56	13.10	119.1
Agricultural Machinery						
1990	3.07	2.24	.90	.54	6.74	46.8
1991	3.10	2.57	.86	.53	7.14	53.9
1992	2.78	1.75	1.33	1.35	7.21	57.5
1993	2.73	1.98	.89	1.53	7.48	68.0

Source: Computed from data provided by JICA

Note: Annual totals may not equal grand totals due to rounding. Totals for FY 1990 and 1991 include small amounts for Western Samoa, which are not reflected in regional totals. Estimates for FY 1990 and 1993 are based on percentage distributions for adjacent years. Regions are the same as those defined in Table 5.2.

JICA officials (Abe, personal communication, 1994), there was an acknowledgment that pesticides can cause undesirable environmental impacts. Nonetheless, these officials emphasized that if a receiving country concludes that a pesticide's use is environmentally acceptable, then JICA (and, by extension, the Ministry of Foreign Affairs) accepts such a judgment.[46] In the words of one senior official within JICA, "We can't get into any information on how pesticides affect the environment."

More broadly, Japan's stance on the assessment of the potential environmental implications of pesticides raises larger issues about the overall monitoring of actual consequences. In addition to environmental effects, for example, pesticides can cause problems with human health. Arguably as well, donor agencies will want to ensure that their assistance is used both wisely and appropriately. To do so, many donor agencies require the establishment of some kind of monitoring system, conduct periodic evaluations, and require reports that relate goals and accomplishments. Among the donor agencies examined in this report, USAID's monitoring and evaluation requirements may be the most comprehensive; Japan's may be the least comprehensive, at least in regard to its Grant Aid for Increased Food Production.

On the one hand, before responding to requests for other forms of assistance, for example, JICA officials (or consultants working for JICA) will visit the nation that has made the request to discuss it with officials of the host government and to prepare a design study "in order to compile an optimum draft proposal necessary for the implementation of the grant aid project" (JICA 1994e). Only infrequently are such visits con-

ducted before pesticides are provided (Kuroda 1993). Similarly, there is no evidence that JICA conducts an assessment of the potential environmental risks associated with the pesticides it donates or that Japan imposes any (environmental) conditionalities on the recipients of pesticides (Machida, personal communication, 1994). JICA's Technical Committee on Increased Food Production (JICA 1994d) has recommended that all countries that receive pesticides from Japan be requested to manage them in accordance with the FAO's Code of Conduct (FAO 1990).

On the other hand, it appears that Japan defers almost completely to the recipient governments' monitoring and evaluation, to the extent that such activities occur.[47] Recipient governments are requested to monitor and evaluate the progress of their 2KR grants and to provide annual reports to Japan's Ministry of Foreign Affairs. JICA (1994b) suggests that these reports, which are often submitted with requests for new 2KR assistance, discuss:

- the "distribution record" of the donated inputs;
- a utilization and maintenance record for agricultural machinery;
- data on how the donated inputs have contributed to increased food production; and,
- the amount of money in the counterpart fund.

The panel of JICA experts referred to above (JICA 1994d) noted that some countries have not provided even this rudimentary information, perhaps because "it is difficult to monitor the conditions of distribution and use." Among reports that have been received, the panel considers some to be insufficient. In response, the panel encouraged the Japanese government to monitor more actively the use of pesticides it donates to developing countries. The proposed method of doing so is to have field surveys conducted in each recipient country every five years. The field survey team would examine the countries' national agricultural development plans, discuss the need for agricultural inputs with officials of the host country, and then make recommendations for 2KR aid for the next five-year period. If the survey teams finds that pesticides have been used inappropriately, then the teams can recommend that further donations of pesticides be terminated. JICA planned such visits to about ten African countries in 1994 (Abe, personal communication, 1994).

Other evidence suggests that Japan's experience with pesticides is not environmentally atypical. Nearly 40 percent of the "environmental monitors" from Japan's Environment Agency believed that the environment did not receive full consideration in assistance activities; another one-fifth believes that Japan's assistance is destructive to the environment in developing countries (Yen Aid Watch 1994).

JICA's relative lack of emphasis on monitoring and evaluation is not unexpected, given the history and perspective of Japanese foreign assistance. As noted earlier, JICA is a small agency without a large field presence. Unlike USAID, which infrequently provides assistance to countries in which it does not have a presence, Japan typically provides 2KR aid to many countries without JICA offices or staffs. In sub-Saharan Africa, for example, there were 28 recipients of 2KR aid in 1993, but only 12 JICA offices. Four of these were established to coordinate the dispatch of Japan's Overseas Cooperation Volunteers. Even when JICA does have a field presence, it tends to be small. In late 1987, as an illustration, the largest JICA office in Africa, in Nairobi, had only six people; JICA offices in Ethiopia, Ghana, Nigeria, and Malawi had one person each in that year (Inukai 1993).

One consequence of such organizational arrangements is that many of the Japanese officials with responsibility for foreign assistance have little familiarity with ecological and environmental conditions in developing countries. Thus, some large recipients of 2KR aid, such as Mozambique, receive, store, formulate, repackage, distribute, use, and dispose of donated pesticides from Japan in the absence of any oversight or monitoring by JICA. In such situations, JICA officials in Tokyo must rely on the good graces of their colleagues in Japanese embassies, where such embassies exist in recipient countries. Some evidence suggests that this is the case; several JICA officials noted their dependence on Japanese embassies for information on the use of 2KR donations, including pesticides. This arrangement has led to what Nuscheler (1992, 29) labels as "serious quality flaws" in

Japan's monitoring and final evaluation of its foreign assistance projects. In a comparative study of other donor programs, USAID (1992a, D23) cites Japan's foreign assistance program as having "fairly weak project evaluation, primarily aimed at cost effectiveness." Forrest (1989) provides a similar assessment when he notes that when the Ministry of Foreign Affairs conducts an evaluation of a foreign assistance activity, no social or environmental factors are considered. Equally important, many of these evaluations are brief. It is not unusual for an evaluation team, which may include only one person, to assess three or four multiyear loans and projects in two countries in two weeks or less.

Japan's outlook on monitoring and evaluation is also reflective of its view that foreign assistance is provided to sovereign entities. As Lewis (1993, 38) observes, Japan is a "strong defender of the principles of sovereignty and nonintervention." In respect of this sovereignty, Japan typically minimizes the attachment of substantive conditions to its assistance on the presumption that such efforts would represent unwelcome meddling in the domestic affairs of other nations (USAID 1992a). From an American perspective, the Japanese may exercise this deference to the extreme. In an assessment of other donor programs, for example, USAID cites an instance in the mid 1980s when allegations of corruption with Japan's foreign assistance to the Philippines prompted some members of Japan's parliament to propose audits for all activities funded through assistance. The Ministry of Foreign Affairs rejected the proposal, and the assessment (USAID 1992a, D23) observed that many Japanese legislators "believe that Japan should have no interest in how a recipient uses aid funds unless corruption has occurred."

Moreover, whereas other donors often have ideological strings attached to their assistance, Japan's emphasis has, until recently, focused on the development of commercial opportunities for its business community, which is not surprising for a nation short of natural resources and heavily dependent on exports.[48] Finally, as many other donors have discovered, project aid, such as that provided through JICA and the 2KR program, is rarely an effective instrument for inducing changes in policy (Lewis 1993).

CAMBODIA: A CASE STUDY

No single source of information is available that summarizes the operation of the 2KR program in individual countries, thus it is difficult to describe how all the "pieces" of the program fit together. One exception is found in Cambodia, where the controversial nature of Japanese grant aid has led to considerable attention from the media and from NGOs in Japan and Cambodia. JICA's experience in Cambodia may not be illustrative of how the program is administered in other countries, but the experience is at least suggestive of the process.

Japan did not provide any grant aid to Cambodia in the mid or late 1980s and did not consider doing so until it received a request for assistance from Cambodia's Ministry of Agriculture in February 1992 (Hadfield 1993; Kuroda 1993). Once the request was received, the Japanese government moved quickly to respond. JICA dispatched an assessment team to Cambodia in March and April 1992, to ascertain how the requested items would support the country's agricultural efforts. This assessment did not involve consideration of potential environmental effects or the appropriateness of the pesticides for Cambodia's agricultural system (Kuroda 1993). As a spokesperson for the Ministry of Agriculture noted, his colleagues recognized that the use of pesticides can have negative effects on the environment, "but there's been no research or monitoring of the impact — there's no institution here [in Cambodia] to test the pesticides" (Fahn and Colm 1993, 1, 12). After the initial visit, an exchange of notes occurred in May 1992, and this was followed in June with another visit to arrange and facilitate implementation of the aid. The first shipments arrived in March 1993.

The grant-aid package totaled ¥500 million (or about $3.78 million dollars at the exchange rate in effect at that time). In addition to fertilizers and agricultural machinery, the Ministry of Agriculture requested 30,000 liters of three insecticides, diazinon, fenitrothion, and fenvalerate, all for use on rice, plus spraying equipment with which to apply the pesticides.

The WHO places all three insecticides in class II, which indicates that they are "moderately hazardous."[49] Regardless of their classification, Japan's decision to provide the insecticides sparked considerable attention and opposition (e.g., Fahn and Colm 1993; Hadfield 1993; Mallet 1993). Japanese NGOs claimed that Cambodia was an ill-suited recipient of the pesticides. To buttress their case, these NGOs noted that Cambodia had neither legislation governing pesticides nor any effective means for insuring their safe use; the Ministry of Agriculture was alleged to be corrupt and barely functioning (Mallet 1993). The NGOs gained the support of the FAO's Intercountry Programme for Integrated Pest Control in Rice in South and Southeast Asia, which questioned the merits of using pesticides on rice in Cambodia. Indeed, the director of the FAO program (Kenmore 1992, 2) argued to his superiors that the level of pests in Cambodia was within tolerable levels and was expected to stay that way "unless the ecology is put into imbalance with the incorrect use of pesticides." He further noted that diazinon and fenitrothion are organophosphates whose use requires protective clothing to prevent adverse effects on humans' nervous systems. As Kenmore explained, however, such clothing would be so uncomfortable to wear in tropical climates that the pesticides "cannot be applied safely by small farmers" (Mallet 1993). Perhaps because of similar concerns, Indonesia banned the use of both pesticides in many formulations for use on rice in 1986 (Gallagher, personal communication, 1994).

When representatives of the Japanese NGOs pressed their Ministry of Foreign Affairs to explain how the three pesticides were chosen, the NGOs were told that the ministry had not been involved in the selection process; that task had been the Cambodian's (Kuroda 1993). Similarly, Japanese government officials explained that they did not have responsibility for the distribution or safe handling of the pesticides; that too was left to the Cambodians (Mallet 1993). The NGOs were unsuccessful in convincing the Ministry of Foreign Affairs to halt the shipment of pesticides to Cambodia, but ministry officials did agree to study the issue (Muccio 1993).

In response to concern about the donated pesticides, the Ministry of Agriculture decided to store the pesticides until a training campaign could take place. Despite a belief that Cambodia already had sufficient expertise, the Japanese government elected to provide training on the safe use of pesticides to three Cambodians (Hadfield 1993). Soon thereafter, the Japanese ambassador to Cambodia asked his government to delay further shipments of pesticides until JICA sent agricultural experts to Cambodia to assist in explaining how the pesticides should be used.

The Ministry of Foreign Affairs and JICA initially defended their actions, but an internal review of the Cambodian program caused these agencies to alter their perspectives. After conducting field research in Cambodia in late 1993, JICA acknowledged that sending pesticides to the country had been a mistake (Mainichi Daily News 1994). Citing the absence of laws controlling pesticide use and farmers' beliefs that pesticides are not required for rice, Japan decided to suspend further shipments. For pesticides already provided, the Ministry of Foreign Affairs indicated that it would monitor their use closely.

The reader is again reminded that Japan's experience in Cambodia may not be subject to generalization elsewhere. Nonetheless, the experience has caused both officials within JICA and the Ministry of Foreign Affairs to reconsider their policies and the responsibilities associated with donating pesticides to developing countries. Some FAO officials openly criticized the effort, and disparaging commentaries appeared in magazines or newspapers in Japan, Cambodia, Thailand, and the United Kingdom. Officials from JICA and the Ministry of Foreign Affairs found themselves on the defensive in interviews with the news media and at several well-publicized meetings in Japan. Whether the Cambodian experience brings about any change in the 2KR program remains to be seen.

OTHER PESTICIDE-RELATED INITIATIVES

Training

In recognition of the need to use pesticides safely, JICA has recently begun an annual training program devoted to the safe use of pesticides (JICA 1993). The four-week course, which is presented in English, is intended to improve the effectiveness of administrative systems designed to ensure safe use of pesticides and officials who are responsible for the implementation of such systems. The 1994 training session, which took place at the offices of Japan's Society of the Agricultural Chemical Industry in Tokyo, devoted one week to each the following topics:

- pesticide administration, including law, regulations, and administrative measures for the safe use of pesticides;
- safety assessments of pesticides and environmental protection;
- pesticides in general, including discussion of the types of pesticides, development and manufacture of safe products, and safe transportation; and,
- a visit and field tour to an agricultural chemical inspection station.

A review of the course prospectus does not indicate that any attention was devoted to alternatives means of pest management, such as integrated pest management.

Integrated Pest Management

No Japanese agency involved with foreign assistance appears to have devoted much attention to opportunities to increase reliance on IPM. For example, when asked in mid-1994 if JICA had funded any projects or activities that encourage the use of IPM, agency officials were not able to provide any examples.[50] Likewise, these officials were not able to indicate whether JICA or the Ministry of Foreign Affairs has a policy on the relative role of IPM. Discussions with members of several Japanese NGOs that monitor Japan's foreign assistance and one FAO official familiar with this assistance suggest similar conclusions, namely that Japan cannot point to many of its own IPM-related efforts. Research on donor programs and pesticides in several African countries reached the same conclusion (e.g., Matteson and Meltzer 1994a, 1994b; Meltzer, Matteson, and Knausenberger 1994).

In spite of this relative lack of information, it is still possible to gain a sense of JICA's perspective on IPM through a review of a brief report on rice production and IPM in Indonesia (JICA 1994c). With the FAO's support, many of the rice-growing nations of Southeast Asia have attempted to reduce their use of pesticides on rice. In many instances, such reductions have occurred while production has remained stable or even increased. Considerable research in the region, especially by the International Rice Research Institute (IRRI) (e.g., Rola and Pingali 1993), reveals that the use of some pesticides on rice fields can produce a resurgence of pests and frequent large-scale infestations of previously unimportant pests such as brown plant hoppers (BPH). Rola and Pingali thus recommended that national governments should impose stringent restrictions on resurgence-inducing pesticides for use in rice production. When Indonesia banned the use of more than 50 pesticides, including the three donated to Cambodia (Hadfield 1993), in 1986, pesticide use declined as did infestations of BPH. In contrast, production continued to increase, and increasingly large numbers of farmers in Indonesia now rely on IPM. It is significant to note that IRRI now considers the use of insecticides in tropical Asian rice to be unnecessary in normal years (Rola and Pingali 1993).

JICA's reaction to this experience may be instructive. In a brief report reviewing this experience (JICA 1994c), the authors reject the hypothesized relation between pesticide use and outbreaks of BPH. In their estimation, the prevention of a predicted infestation of BPH in Indonesia in 1987 was due less to IPM than to the use of buprofezin, an insecticide that Japan provided. Furthermore, the authors note, even if a farmer prefers to rely on IPM, such reliance is "not realistic" without pesticides. As the authors concluded, although IPM is a

"desirable and ideal model," the practical application of IPM is yet to be established because of the many problems associated with it. One such problem, the authors indicate, is that alternative pest management strategies to replace insecticides are still being developed. As the chairman of JICA's Technical Committee on Increased Food Production similarly noted (Hemmi, personal communication, 1994), the achievements associated with IPM to date are far short of what is required to provide adequate supplies of food: "I cannot expect people of the developing world to live without the use of pesticides in the near future."

CONCLUSIONS

Japan's role in providing foreign assistance to developing nations reflects its preferences and historical experiences. These experiences are considerably different from those in Europe or the United States, so the same criteria for evaluation or assessment may not be readily applicable. Moreover, no country welcomes or appreciates criticism of its generosity. Nonetheless, the size and influence of Japan's foreign assistance program provide the Japanese with enormous opportunities for influence. With increasing amounts of untied assistance and a long-standing reluctance to impose conditions on its use, Japan is likely to find that its assistance programs are popular among recipients.

These appealing features notwithstanding, Japan's assistance program operates in the context of (and occasionally in competition with) other donors' programs. All donors are interested in eradicating poverty and in stimulating economic development, including that associated with increases in agricultural productivity. How these goals are achieved is subject to debate and disagreement. USAID, for example, largely eschews the use of pesticides to spur agricultural productivity; Japan's approach is obviously a polar opposite. Both preferences have policy consequences. For the Japanese, as an illustration, their willingness to donate large amounts of pesticides undercuts efforts to use them sparingly or in the context of IPM. As Rola and Pingali (1993) concluded, for example, farmers do not adopt IPM in environments in which pesticides are subsidized. Subsidies create disincentives to acquiring the skills associated with IPM. Similarly, other donors' efforts to reduce or eliminate subsidies for pesticides (and fertilizers) are foiled when governments in developing countries find it in their economic interest to request these agricultural inputs from Japan. At whatever price the inputs are sold, governments are virtually assured of a profit. In order to avoid competition with private vendors, whose costs will be much higher than those of their governments, the latter have an incentive to sell donated pesticides and fertilizers at less-than-market prices.

6. United Kingdom

Unlike the organizational arrangements for foreign assistance found in France and Japan, such arrangements in the United Kingdom are straightforward and seemingly easy to explain.[51] The Overseas Development Administration (ODA) and the Commonwealth Development Corporation (CDC) are the primary actors; the former is responsible for the overall planning, control, and administration of development assistance; the CDC provides long-term loans in the public and private sectors in developing countries (USAID 1992a). Regardless of the apparent ease in explaining these arrangements, they too reflect the country's political and economic priorities, just as is the case in the other countries discussed in this report.

THE OVERSEAS DEVELOPMENT ADMINISTRATION

First created as a Ministry of Development in 1964, the ODA makes policy, provides financial assistance and technical cooperation, and oversees the distribution of the U.K.'s contributions to multilateral institutions such as the World Bank, the European Community, and the United Nations. Since its creation the ODA has seen its size, structure, and relative organizational prestige change several times. Although a minister for overseas development heads the ODA, it has been part of the Foreign and Commonwealth Office and thus subject to the secretary of state for foreign and commonwealth affairs since 1979. Before that time the Ministry of Overseas Development was a separate entity. Some commentators (e.g., Winpenny 1991; German 1993) have speculated that the ODA's change in institutional status reflected a preference that political, industrial, and commercial objectives should govern the distribution of the U.K.'s development assistance. Indeed, the year after the reorganization the government announced that it intended to give greater consideration to political, industrial, and commercial interests in the distribution of its aid.

Compared to other major donors, the ODA's staff is relatively small. In the early 1990s, the ODA had approximately 1,700 staff members, down from over 2,300 in the late 1970s (Burnell 1991: OECD 1994a). The majority of this staff is located in the United Kingdom. This distributional pattern suggests that decision making is centralized, and other evidence supports such a conclusion. On the one hand, diplomatic missions administer development programs on a day-to-day basis in developing countries and represent the ODA's interests with recipient governments, thus reducing the need for a large overseas staff. On the other hand, whereas strategic decisions about assistance are made in London, the ODA has relatively few staff members that are assigned on a long-term basis in developing countries. One estimate from the early 1990s (USAID 1992a) placed that number at less than one hundred. Many of these are located in five overseas development divisions or regional offices in Lilongwe, Malawi; Nairobi, Kenya; Bangkok, Thailand; Bridgetown, Barbados; and, since mid-1993, Pretoria, South Africa. With the exception of the division in Barbados, their responsibilities involve policy making and implementation of assistance activities. Each of the five development divisions has experts on various issues, such as economics, education, engineering, environment, and natural resources.

In addition to its own staff, the ODA relies on Crown Agents for Overseas Governments and Administrations for disbursement of some loans and grants. Crown agents serve some recipient countries by assisting in the development of tender notices and in procurement. In some countries, these agents are so trusted that they are given responsibility for managing aid on behalf of the recipients (Bendix 1987).[52]

THE COMMONWEALTH DEVELOPMENT CORPORATION

The CDC is a public corporation established in 1948 to make loans and to provide equity capital for financially viable investments, primarily and increasingly to the private sector, in developing countries in order to improve their public and physical infrastructure. The CDC has about 20 overseas offices and about 400 employees.

The CDC's portfolio was limited to countries in the Commonwealth until 1969. Although it now has a broader geographic mandate, many of the CDC's activities still focus on sub-Saharan Africa. Most of the CDC's support can be categorized as project rather than as program aid. In addition to providing loans and equity, the CDC provides management services for some projects and occasionally provides services related to purchasing, marketing, and personnel. The CDC operates outside of government-to-government channels, and its financial activities are not appropriately classified as official development assistance, as defined by the OECD's Development Assistance Committee.[53] The CDC is legally required to insure that its expenditures do not exceed its income on a year-to-year basis (ODA 1991). According to the OECD, such assistance must have a minimum level of concessionality; not all of the CDC's loans do because of the government's reluctance to subsidize the private sector in developing countries.

THE UNITED KINGDOM'S PERSPECTIVES ON FOREIGN ASSISTANCE

Major parliamentary declarations of the United Kingdom's strategic policies relevant to foreign assistance are infrequent. The last such document, *The Changing Emphasis in British Aid Policies: More Help for the Poorest*, was issued in 1975. It emphasized the government's commitment to alleviate the worst poverty over the long term through increased reliance in bilateral aid to the world's poorest countries (Howell 1988). More recently, with the approval of the Overseas Development and Cooperation Act (1980), the Parliament established a goal of "Promoting the development or maintaining the economy of a country or territory outside the United Kingdom, or the welfare of its people."

The Foreign Affairs Committee of the House of Commons requires a report each year from the ODA and also scrutinizes plans for expenditure and activities. The Parliament approves budget requests, but reportedly reviews the details of only those requests associated with contributions to multilateral organizations, institutional funding, and research and development (USAID 1992a). The Parliament's knowledge of individual bilateral projects is meager, and parliamentary debates on foreign assistance are rare. According to Burnell (1991), for example, the first parliamentary discussion about the relation between aid and the environment did not occur until mid-1990.

With the election of a Conservative government in 1979, there followed a change in emphasis. As noted above, increased attention was given to commercial interests, and this is best reflected in the additional resources devoted to the subsidization of exports from the United Kingdom to credit-worthy countries through foreign assistance as part of the Aid and Trade Provision (ATP). In first year (1978) after the provision's approval, approximately 5 percent of the ODA's resources were used for the program; by the early 1990s this percentage had nearly doubled (German 1993; OECD 1994a). The program is somewhat controversial. Potential exporters approach the Department of Trade and Industry with requests for support to export their products; in turn, the department uses the ODA's funds to subsidize requests deemed suitable. There are also claims that such commercial aid, which faces time constraints in its distribution, does not receive appropriate environmental review and that it benefits nations that can afford to purchase technology from the United Kingdom at the expense of nations that cannot.[54] A review of the ATP in the early 1990s led the ODA to refocus the subsidies on low-income countries.

Notwithstanding this element of the U.K.'s foreign assistance and the lack of a recent parliamentary

statement of strategic objectives, it is possible to discern policies and priorities for foreign assistance through an analysis of the ODA's annual reports and documentation submitted to the OECD's Development Assistance Committee. These policies have evolved, most recently as a result of the U.N. Conference on Environment and Development in 1992. After this conference, the ODA conducted an internal review of its assistance strategy and concluded that its emphasis on the poorest countries should continue. For these countries, the ODA decided that it would extend assistance on the most concessional terms because these countries have the fewest opportunities for generating domestic resources for development. For middle-income countries, assistance would be limited to technical assistance or expertise; their financial needs can be more readily met through access to international financial institutions.

Programmatically, the review concluded that foreign assistance from the United Kingdom should focus on the "promotion of sustainable economic and social development, in order to improve the quality of life and reduce poverty, suffering and deprivation."[55] Allied with this statement of purpose are seven priority objectives, which aspire to:

- promote economic reform;
- enhance productive capacity;
- promote good government;
- help developing countries to define and implement strategies to reduce poverty;
- promote human development;
- promote the social, economic,legal, and political status of women; and
- to help recipients address national environmental problems.

Not all seven priorities are pursued in every country; the choice of priorities attempts to match recipients' needs.

Within the second focus area, one subject for emphasis includes the support of agricultural research and extension. Within the environmental area, attention is to be given to the goals of Agenda 21, particularly energy efficiency, the conservation of forests and biological diversity, population issues, and sustainable agriculture. Efforts to achieve these agricultural and environmental objectives are discussed below.

THE FORM AND DISTRIBUTION OF THE U.K.'S OFFICIAL DEVELOPMENT ASSISTANCE

Much of the United Kingdom's assistance is targeted at the least developed countries. Among the approximately 135 countries that receive aid in a typical year, however, the members of the Commonwealth find themselves in a favored position. In the early 1990s, for example, over 80 percent of bilateral aid from the provided through the ODA went to countries with per capita incomes of less than $730; approximately 70 percent went to countries in the Commonwealth. Asia was the single largest regional recipient of the U.K.'s assistance until the mid 1980s. Since then, however, more than half of all bilateral aid has gone to Africa, although India is the largest recipient. During the early 1990s, approximately half of all bilateral aid was devoted to technical assistance, all of which was provided through grants that do not require repayment.[56] The amounts of assistance remained relatively stable throughout the 1980s but declined in real terms and as a proportion of gross national product (from a high of 0.51 percent in 1979 to 0.27 percent in 1991 before increasing to 0.31 percent in 1992). The United Kingdom provides an unusually large share of its foreign assistance through multilateral institutions, especially the European Community (EC). Among all members of the Development Assistance Committee, the average multilateral contribution was slightly over 30 percent. In contrast, the United Kingdom devoted almost half of its official development assistance, which amounted to $2.9 billion in 1993, to multilateral organizations (OECD 1994a).[57]

In addition to differences in the allocation of resources among regions and institutions, foreign assistance from the United Kingdom has typically taken different forms from one region to the next. Project-

based support directed at poverty and ATP and CDC projects tend to predominate in Asia. In contrast, program assistance directed at macroeconomic and structural reform increased considerably in the late 1980s as the vehicle for distributing assistance in sub-Saharan Africa.[58] Between 1984 and 1989, as an illustration, the bilateral expenditures for program assistance for the region increased more than six times, from $37 million to $266 million (as measured in 1988 dollars). Agriculture and manufacturing were the two sectors that benefitted the most from the program assistance in the late 1980s, but total program aid for agriculture suffered a precipitous drop in 1990 (i.e., to £2.9 million from £12.5 million the previous year). The amounts devoted to technical assistance have increased in recent years at the expense of program aid, which declined as a proportion of total bilateral commitments during the early 1990s.

All program aid is linked to the World Bank's structural adjustment loans, and nearly all of it is policy related. In the agricultural sector, the provision of program aid has typically been linked to changes the Bank has required in policies affecting prices, input subsidies, outputs, and export earnings. As the amount of money devoted to program aid has increased in sub-Saharan Africa, the amount devoted to project aid has decreased. There has been considerable scrutiny of the merits of program aid within the government in recent years, and this scrutiny has suggested the desirability of allocating greater resources to sectoral adjustment rather than to broader structural adjustment programs (OECD 1994a). Sectorally related programs combine policy reforms with advice, technical assistance, and conditionality (ODA 1992a). Despite the conditionality, program aid is usually not released in tranches due to the small amounts involved.

ASSISTANCE TO AFRICAN AGRICULTURE

Agriculture has had a checkered pattern of support within the foreign aid program. Although it appears to be an important sector in the mid-1990s, at least in terms of the distribution of assistance, this has not always been the case. In the 1972, for example, the United Kingdom supported 740 agricultural specialists in Africa. By 1985, there were only 154 (Howell 1988). Excluding technical assistance and measured in current dollars, the United Kingdom committed only $8 million to agricultural activities in 1983 compared to $53 million in 1979 (OECD 1986, 186).

A similarly dire perspective on the U.K.'s support for African agriculture appeared in a comprehensive report on *UK Aid to African Agriculture* that the All Party Parliamentary Group on Overseas Development (1985) produced. The Group was established to examine important issues of development policy, and African agriculture was selected as the first topic for study. In reviewing the distribution of bilateral aid within the agricultural sector from 1979 to 1985, the Group found that aid of direct benefit to agriculture was focused on high-value crops intended for export (e.g., tea, coffee, and sugar). Much of the emphasis on these estate crops reflected the priorities of the CDC, which must seek a return on its investments. During the first half of the 1980s, as an illustration, one-third of agricultural assistance from the United Kingdom to Kenya was devoted to the tea industry (All Party Parliamentary Group 1985). Similarly, much of agricultural aid to Sudan was directed at cotton and was used to import agrichemicals. In the Group's opinion, the CDC had been "extraordinarily successful in its development of export crops" (All Party Parliamentary Group 1985, 51).

In contrast to this success, the Group drew attention to a discouraging trend in the overall allocation of resources to African agriculture. The government's rhetoric in the early 1980s supported increased attention to the continent's agricultural needs, but trends in spending patterns were inconsistent with this view. As overall spending for bilateral assistance declined in real terms in the early 1980s, agriculture suffered a disproportionate share of the cutbacks. There was a sharp reduction in integrated rural development projects and limited amounts devoted to agricultural research and subsistence farming. In contrast, resources were increased for projects involving power and communications. In the Group's view, increased

attention to these areas revealed a preference for commercial opportunities among firms in the United Kingdom. As advocates for African agriculture, the Group concluded that such a preference was incompatible with increased attention to agriculture.

Beginning in the mid-1980s, however, with the advent of the U.K.'s involvement with program aid, attention to agriculture once again increased only to fall again sharply in the late 1980s and early 1990s.[59] As noted earlier, however, the U.N. Conference on Environment and Development spurred further attention to sustainable agriculture. Given this renewed attention and the purposes of this report, it is now appropriate to consider the CDC's and ODA's integration of agricultural and environmental values. In reviewing this integration, it is important to note the informal distribution of responsibility for agricultural assistance between the CDC and the ODA. The former generally limits its loans to commercial estates that are producing for export; the latter now emphasizes the needs of small farmers and the alleviation of poverty.

THE CDC'S ENVIRONMENTAL POLICIES

The CDC published a *Statement of Environmental Policies and Procedures* in August 1993 (CDC 1993). The document, which is not intended for public dissemination, emphasizes that the CDC is an organization required to operate in a financially sound manner, but that this mandate does not preclude combining economic development with respect for the limitations of environmental resources. In this regard, the policy statement encourages the sustainable use of environmental resources and discourages investments in projects where the environment affected by the development is not adequately considered by the project design. To achieve these objectives, the CDC's policies:

- seek to ensure that the environmental effects of development projects are considered at all stages;
- attempt to ensure that environmental resources are used sustainably;
- for projects with potentially adverse effects on the environment, require the CDC to determine whether its involvement will create an opportunity to improve the situation;
- require a balancing of social, financial, economic, and environmental factors; and
- advocate that all potential projects be assigned one of three environmental classifications (i.e., low risk, sensitive, or highly sensitive) (CDC 1993, 1-2, 13).[60]

The CDC further requires that none of its projects contravene any relevant environmental legislation in the host country or any relevant international agreements or conventions to which either the United Kingdom or the host country is a signatory.

In terms of procedures to comply with these policies, each stage of project investigation, implementation, and operation requires explicit consideration of environmental issues.[61] For example, appraisal teams are required to have appropriate environmental specialists, and a team's reports must discuss a project's environmental aspects. The appraisal team must recommend the level of monitoring deemed appropriate to the level of environmental sensitivity and indicate how such a monitoring system should be included in the project agreement. Moreover, in negotiating loans or equity investments with prospective recipients, the CDC reserves the right to obligate compliance with environmental conditions and reporting requirements. All post-project evaluations must also consider environmental impacts.

The CDC's environmental policies are impressive, as they are intended to be. The CDC's preference is to be involved with model projects, so the CDC is thus willing to assign more weight to environmental values than other commercial investors might do. To the extent that there are weaknesses in the policies, several exist. First, the policies were developed only recently, so projects initiated before publication of the policy statement may not have benefitted from the application of similar or comparable policies or standards.

Second, the policies allow for a balancing of poten-

tially competing economic and environmental values. There are instances in which these values are compatible, but large-scale infrastructural development often has some undesirable environmental effects. To the extent that the CDC's balancing process relies on cost-benefit analysis or a similar methodology, then environmental values not easily monetized suffer. Unfortunately, there are many such values, such as that of an endangered species or the potential capacity of tropical forests to produce nontimber forest products. A balancing process also assumes that only environmental assets with a measurable economic value should be entered into the cost-benefit calculations.

Third, although the policy statement recognizes that environmental assessment is necessary when chemicals are used in agriculture, the CDC has no special guidelines on the procurement of pesticides (Killick, personal communication, 1994). Absent such guidelines, the CDC assesses its practices with reference to the pesticide standards of the United Kingdom, the European Community, and the World Bank.

Finally, opportunities for public oversight are absent. However thorough the environmental portion of project appraisals may be, such documents are not subject to public disclosure.

THE ODA'S ENVIRONMENTAL POLICIES

The ODA issued internal guidelines to its employees in 1981 asking that they consider the environmental implications of the administration's development activities, but these guidelines did not require any formal assessment process. In the early 1980s as well, the ODA suggested that it would consider the development of operational guidelines for the environmental assessment of its activities (OECD 1982). Such guidelines did not appear until early 1989. The ODA subsequently revised them in early 1992 after seeking comments from scores of reviewers in other donor agencies, multilateral banks, and nongovernmental organizations. The end result, a *Manual of Environmental Appraisal* (ODA 1992a), is a comprehensive document that provides attention to virtually all areas of environmental review. The manual is intended to be user friendly and provides citations to relevant literature as well as the names of organizations and ODA units that can provide additional information on specific issues. Each ODA project manager is required to attend a training course related to the manual.

The manual begins with ten principles that are intended to govern all that the ODA does. Among the principles are the following:

- all aid-funded activities must be environmentally acceptable, and all proposals for new activities must consider environmental issues;
- concern for the environment must be reflected in all stages of a project, from design through evaluation;
- the recipient country's environmental standards serve as minimum requirements for ODA projects;
- where a host country assumes responsibility for the environmental components of a project, the ODA will retain responsibility for guaranteeing that such measures are given appropriate consideration;
- if environmental concerns cannot be handled adequately or a project is likely to have unacceptable social or environmental costs, then the ODA should reject it;[62] and,
- environmental conditions may be imposed on recipients, and the ODA should consider support for institution building and the strengthening of environmental capabilities regardless of the subject area of the assistance (ODA 1992a, 2).

In a logically sequential manner the manual proceeds from initial screening (for which project managers are responsible), to ecosystems and environmental concerns, to environmental appraisals (which include professional environmental specialists), and then to environmental impact assessments. The latter are required when the laws of the recipient government mandate them, when an environmental appraisal "yields disturbing results," or when an appraisal makes

a strong case for further investigation (ODA 1992a, 19). Environmental impact assessments are rarely conducted.

For each topic the manual discusses, it also provides a checklist of issues to be addressed. Unlike USAID, the ODA does not impose a virtual prohibition on the use of pesticides for agricultural activities, so it is worth considering what the ODA's procedures involve in terms of pesticides. First, decisions about whether pesticides will be part of an assistance activity are made on a case-by-case basis and in accordance with the FAO's Code of Conduct.

Second, project officers are given authority to decide whether pesticides should be used, but these officers are expected to consult about the risks and benefits with specialists at the Natural Resources Institute (NRI) (see below) before reaching a decision. In turn, the specialists are expected to answer a series of questions about the need for and environmental consequences of pesticides. These questions can be found in Appendix 3.

Third, when pesticides are provided for agricultural purposes through either project or nonproject assistance (and this rarely occurs now compared to the 1970s and early 1980s), products in WHO's class II or III are preferred.[63] Pesticides in class Ia or Ib are occasionally provided when target pests are resistant to other, less formidable products. Furthermore, whereas organochlorines are precluded from consideration as suitable agrichemicals, pesticides governed by the FAO's provisions on prior informed consent (PIC) are among the pesticides that the ODA will consider.[64] Such pesticides may be provided, but only when no suitable alternatives exist and then in full compliance with the PIC-related requirements on notification of the recipient's designated national authority. As this flexibility suggests, the ODA has neither guidelines on the procurement of pesticides nor on the management of pests (Fleischer 1993). Nonetheless, the environmental manual does recommend consideration of IPM.

Fourth, responsibility for monitoring the environmental consequences of pesticide use is in the hands of a project's in-country staff, where one exists. A case-by-case approach for monitoring is used, but the terms of reference for any project involving pesticides will require both monitoring and evaluation of environmental effects. In spite of this requirement, some of the NRI's staff believe that donors, including the ODA, devote insufficient attention to monitoring the use and environmental impacts of donated pesticides.

Like USAID's reliance on environmental monitoring, evaluation, and mitigation plans (Hecht 1994), the ODA recognizes that implementation of projects often leads to unanticipated environmental consequences. For this reason, the manual recognizes the need to collect baseline data that describes the environmental situation before a project begins. The manual's emphasis on monitoring appears to reflect a new emphasis on the subject within the ODA. Much of the responsibility for monitoring in the past relied primarily on diplomatic personnel assigned to embassies; systematic completion of end-of-project reports did not occur until the late 1980s (Healey n.d.). In the words of one assessment of the U.K.'s assistance, this "less rigorous approach" to monitoring is due to historical reliance on efficient colonial administrators and, more recently, to a small, an overburdened field staff (USAID 1992a, D-17) (See Box 6.1).

This discussion suggests that neither the CDC nor the ODA are opposed to the use of pesticides to stimulate agricultural production. Indeed, at least one senior ODA official noted his belief that there may be instances in which there is no alternative but to use pesticides (e.g., with cocoa pests in Ghana). Having noted this perspective, it is equally important to point out that assistance from the United Kingdom seeks to strengthen the capacity of developing countries to use pesticides safely, to improve their control and management, and to research alternatives to reliance on pesticides (ODA 1992b). Perhaps more so than most other bilateral donor agencies, the ODA is particularly well equipped to do so because of the expertise available through its Natural Resources Institute (NRI).

Box 6.1 Monitoring and Evaluation within the ODA

Over the last fifteen years the emphasis on monitoring and evaluation has changed considerably within the ODA. In 1980, for example, the ODA issued extensive guidelines for monitoring and reporting (U.S. General Accounting Office 1983). After a few years' use, however, the guidelines proved to be too complex and cumbersome, so the guidelines were revised to reduce the administrative burden associated with them. Efforts to evaluate the impacts of projects were limited and almost always focused on end-of-project results and issues of general effectiveness.

More recently, the ODA has increased its reliance on project frameworks, which list activities' goals and objectives, how they will be achieved, and what inputs are required. Project frameworks are being computerized to facilitate their use, to enhance consistency among projects, and to facilitate implementation. Project completion reports are produced for projects involving £250,000 or more. Such reports assess the extent to which project goals have been achieved and the lessons that can be learned. A sampling of projects are examined to determine their overall impact, usually several years after the project's completion. About 15 such ex post evaluations are completed every year, with emphasis given to projects in about three sectors (e.g., fisheries, forestry or agriculture) each year. A single synthesis report results (OECD 1994a). Reports are usually released to the public.

THE NATURAL RESOURCES INSTITUTE

The NRI provides the ODA with considerable expertise and technical proficiency. As now organized, the NRI was created in 1987 by the merger of the Tropical Development and Research Institute and the Land Resources Development Centre, but the NRI can trace its origins, through predecessor institutions, to the late 1800s. The NRI is now an executive agency under the ODA's jurisdiction, which allows (or requires) the NRI to seek contracts from other clients within the U.K. government as well as those outside it. The NRI's status as an executive agency is scheduled to change in 1995, and it will become more independent of the ODA. This change may have some implications for staffing levels, which have been declining over the last decade. If the changes lead to a smaller staff, the NRI's expertise may be diminished.

With approximately 500 staff members (or about one-third of the ODA's total), the NRI's purpose is to promote sustainable development of the natural resources sector in country's receiving assistance from the United Kingdom (ODA 1989). The NRI thus focuses its efforts on assessments of land and water resources, the environmental consequences of development projects, and small-scale development projects and applied research related to pest management. Due to the latter task the NRI has significant expertise related to IPM, resource assessment and farming systems, and food science and crop utilization. In terms of IPM, the NRI has internationally recognized social and natural scientists who are experts on several crops grown in the tropics, alternative management technologies (e.g., microbial agents, pheromones, and varietal resistance), and the role of crop protection in a social and economic context.

As an illustration, the Production Systems Economics Section of the NRI's Social Sciences Group examines the policy and institutional issues associated with IPM. Recent multidisciplinary studies, which the NRI prefers, have explored the economic and institutional factors affecting adoption rates of pest management technologies in Honduras, Nepal, and Vietnam. Other research has assessed farmers' perceptions and knowledge of pests and their natural enemies in Kenya, Malawi, and Uganda and studies of the economics of pest resistance to chemical pesticides.

Discussions with several of the NRI's pest-management experts depict a less-than-optimistic situation with regard to the prospects for the extensive adoption of IPM in Africa. Although the NRI has several successful

IPM projects in the region, widespread adoption of IPM as the management strategy of first choice is not foreseeable in the near future, at least in the opinions of those interviewed at the NRI. As several NRI scientists commented, there are few incentives for farmers to adopt the technology, and it may be too complex for Africa. Knowledge of pest regimes in many African countries is deficient, and government information on crop losses is often of limited value. Extension services are typically understaffed and underpaid. As an example, many employees in Cameroon's plant protection service once went 15 months without pay. In Mali, during the last outbreak of locusts and grasshoppers (i.e., 1987-1992), the plant protection service devoted most of its resources to crop losses associated with locusts and grasshoppers. As a result, less attention was devoted to what other major pests exist or how much they contribute to crop losses even though Mali's agricultural research system includes a strong pest-management component. IPM is doomed to failure without such rudimentary information about major pests and their impacts on crops.

In contrast to the potentially discouraging situation with IPM, several of the NRI staff offered reasons why the use of pesticides appeals to many African farmers. In some countries pesticides are distributed for political reasons, and farmers are encouraged to use them. In times past, donated pesticides from some donors were available for routine use even though the pesticides were donated to control episodic locust-related emergencies. This situation has changed in recent years, as donors have minimized quantities and frequencies of donations.

CONCLUSIONS

This review of the United Kingdom's policies suggests a willingness to adopt a utilitarian approach to the donation and use of pesticides in developing countries. While emphasizing the need to consider the environmental implications of policy choices, the ODA's project officers appear to have considerable independence in deciding whether to include pesticides in assistance activities. Unlike USAID, for example, which virtually prohibits the direct purchase of pesticides for agricultural projects and which prohibits a balancing of social, economic, and environmental considerations, the United Kingdom adopts a far more flexible approach that allows case-by-case decisions and a balancing of potentially competing values. One justification for this approach is found in the technical expertise available through the staff of the NRI. Mandatory consultation with this staff on decisions affecting pesticides plus a comprehensive commitment to exploring alternative to pesticides place the ODA (though not necessarily the CDC) in an enviable position among the community of bilateral donors. Having noted the positive aspects of the United Kingdom's assistance program, it is important to note the fluctuating but declining support for agriculture and the pressures on the NRI to find external sources of support for its activities. This situation may create a demand-driven research agenda for the NRI as opposed to one that identifies and attacks crucial problems, including improper use of pesticides and inadequate reliance on IPM.

7. United States

HOW U.S. FOREIGN ASSISTANCE IS STRUCTURED[65]

Several important points about U.S. foreign assistance are worth noting. First, USAID is responsible for administering and implementing the U.S. assistance program, but the agency is subject to considerable influence from the U.S. Congress. The Congress approved the Foreign Assistance Act in 1961, which provides authority for USAID's activities. The Foreign Assistance Act (and nearly 100 subsequent amendments since 1961) governs and restricts what USAID is required or allowed to do.[66] Through these amendments, an annual process of appropriations, and frequent congressional hearings, the Congress typically specifies exactly how funds for U.S. assistance to developing countries can be used, where they can be spent, and on what projects or activities.[67]

Second, most U.S. assistance is devoted to relatively few countries. For strategic reasons, Israel and Egypt normally receive almost half of all U.S. bilateral assistance. Although the total amount of U.S. assistance declined significantly in the early 1990s (to $9.0 billion and 0.14 percent of gross domestic product in 1993), the number of new commitments (particularly to the successor states of the former Soviet Union) has restricted or prevented increases in other areas. One result is that USAID decided in 1993 to reduce the number of countries in which it has missions and projects. Many of the missions to be closed are in sub-Saharan Africa. Countries in that region typically received about 15 percent of U.S. bilateral assistance in the 1980s, but that proportion increased at the end of the decade due to the creation of the Development Fund for Africa (DFA).[68] Much of the money allocated for the DFA is used to provide incentives for sectoral adjustment programs and their associated policy reforms, including policy changes in agricultural production, the marketing of fertilizers, and export promotion. This nonproject assistance is frequently combined with project assistance.

Third, NGOs probably exert more influence on USAID than do comparable organizations vis-à-vis donor agencies in the other countries discussed in this report. American NGOs find themselves with many opportunities to influence U.S. assistance policy due to: a) the relative ease of access to the legislative process; b) their large membership and effective lobbying skills; c) the ease with which such groups can use the judicial process to require USAID's responsiveness to statutory mandates; and d) the openness of the American political system and its governmental agencies. One result of the NGOs' influence is that appropriations of funds for foreign assistance often respond to the preferences of domestic constituencies to the occasional detriment of sound policy (U.S. General Accounting Office 1992).

Fourth, USAID favors a relatively large, staff-intensive in-country presence, at least when compared to other major donors.[69] A large presence supposedly facilitates policy dialogue with host governments, allows proper management and oversight of its activities, and improves understanding of local conditions (USAID 1992). USAID's overseas staff has considerable responsibility, including that for the development of new activities. This staff is the largest of all bilateral donor agencies. In 1992, for example, USAID had almost 11,000 employees and overseas offices in more than 100 countries; approximately three-quarters of USAID's employees are located outside the United States. A typical USAID mission has 15 to 25 U.S. nationals and about twice that number of locally hired staff. In addition to people that USAID has hired as employees, approximately 10,000 more work for USAID indirectly through NGOs, grantees, contractors, or other U.S. government agencies.

USAID'S ENVIRONMENTAL POLICIES

USAID has the distinction of having developed policies and procedures for environmental assessment well before it had clarified what its overall policies on the environment would be. This means as well, of course, that these procedures predate USAID's widespread use of sectoral adjustment programs that involve policy reforms. Consequently, whereas the agency has had procedures for environmental assessment since the early 1970s, its overall development philosophy and approaches to development assistance have changed considerably over time, due both to legislative requirements that USAID direct its attention to certain issues and to the agency's changing preferences for alternative strategies. One recent estimate (U.S. Government Accounting Office 1993b) indicates that the Foreign Assistance Act requires USAID to devote its resources to more than 30 objectives, some of which are contradictory.

In the late 1970s through the mid 1980s in particular, the Congress added several environmental mandates to USAID's portfolio, including insistence that it address biological diversity and tropical forestry in developing countries, that USAID ensure that it consider the potential environmental consequences of its activities in other countries and, more recently, that it address the long-term environmental implications of its efforts to reform economic policies in developing countries.

In response to such instruction, USAID has issued a series of policy statements over the last decade relevant to the environment. Brief attention is devoted to the three most recent, namely those issued in 1988, 1992, and 1994. The frequency with which new statements are issued suggests the dynamic and transitional nature of USAID's perspectives on the environment.

The *AID Policy Paper: Environment and Natural Resources* (1988a, 1) emphasized the agency's commitment to the promotion of "environmentally sound, long-term economic growth by assisting developing countries to conserve and protect the environment and manage their exploited resources for sustainable yields." Tropical forests and biological diversity were identified as issues of special concern, but the policy paper also emphasized the need to devote attention to sustainable production (including sustainable agriculture), the maintenance of natural ecosystems, and human needs in regard to the degradation associated with urbanization and industrialization.

The agency's *Environmental Strategy* (1992b) retained an emphasis on tropical forestry and biological diversity but formally added several additional topics to the agency's environmental agenda. These included unsustainable agricultural practices, environmentally unsound energy production and use, urban and industrial pollution, and degradation and depletion of water and coastal resources. Reflecting the theme of the U.N. Conference on Environment and Development, the 1992 document also advocated environmentally sustainable development. In practical terms, this required the integration of environmental concerns into all of USAID's activities and the promotion of activities designed primarily to protect the environment.

Recognizing the importance of the regional distribution of responsibilities within USAID, the *Environmental Strategy* also discussed each of the five regional bureaus' separate environmental priorities. Within the Bureau for Africa, unsustainable agricultural practices, tropical forestry, and biological diversity were identified as key concerns. Two regional bureaus, for the Near East and Latin America and the Caribbean, also identified sustainable agriculture as a priority issue.

More recently, USAID issued *Strategies for Sustainable Development* (1994). This policy statement has a broader focus than the two previous policy declarations, which focused on the environment as one of many concerns within the agency. *Strategies*, in contrast, attempts to articulate a comprehensive strategy that places concern for sustainable development at the forefront of USAID's purposes. This represents a significant change in the agency's approach to development. In the early 1990s, environmental problems were not among what the agency considered to be its major challenges. The 1994 policy statement places concerns for the environment at the center of the agency's objectives. Within the overall

theme of sustainable development, *Strategies for Sustainable Development* commits USAID's attention and resources to four areas: a) stabilizing world population growth and protecting health; b) encouraging broad-based economic growth; c) building democracy; and d) protecting the environment. The application of the new strategy is intended to produce measurable results, and those implementing USAID's environmental programs are expected to be able to answer such questions as these:

> Has the use of inappropriate pesticides been ended?....Have integrated pest management techniques been disseminated and adopted? Have government subsidies or other policies encouraging environmentally harmful agricultural practices been reformed? (USAID 1994, 14)

Having informed the reader of USAID's overall philosophy toward environmental issues, it is now possible to examine one aspect of this philosophy in substantial detail.

USAID'S EARLY POLICIES ON PESTICIDES, 1961-1970

USAID's policies on the procurement, provision, and donation of pesticides have changed considerably since the agency's creation in 1961.[70] A review of the changes places the agency's record in some perspective; equally important, however, the reasons for the changes provide much of the explanation for the agency's current policies and procedures for environmental review and assessment. Unlike the situation with other donor agencies discussed in this report, where general environmental procedures preceded specific guidelines on pesticides, concern about the possible misuse of pesticides led to more general guidelines on environmental assessment.

In the early 1960s few nations placed a high priority on the relation between development and the environment. Although donor agencies recognized that their projects often had environmental impacts, no nation mandated a prospective assessment of the potential damages that a planned project might cause. At the same time, however, these agencies appreciated that they were guests in the countries in which they operated. Even if concern for the environment had been an important value in the 1960s, USAID was understandably reluctant to impose American values or policy preferences on recipients of U.S. assistance. Thus, although Rachel Carson's Silent Spring brought the indiscriminate use of pesticides to Americans' attention in 1962, respect for national sovereignty governed USAID's policies on pesticides throughout the 1960s. During the decade, USAID allowed all recipients of its assistance to purchase any pesticides they desired and to determine how they would be used within their borders (USAID 1977).

However meritorious this position, much would change in the 1970s, particularly with the passage and approval of the National Environmental Policy Act (NEPA) of 1970. NEPA requires all U.S. government agencies to consider the environmental impacts of their activities. Although the law provides a declaration of policy, its consequence are largely procedural. NEPA requires federal agencies to "use all practicable means and measures" to ensure that their activities do not disrupt the harmony between humans and the environment (Ernsdorff 1992).

To ascertain the potential environmental impacts of a proposed activity, agencies normally complete an environmental assessment (EA). EAs are supposed to discuss the need for the proposed project, alternatives to the action, and the anticipated environmental consequences of the action. If an EA concludes that a project will not have a significant impact, no further environmental review is required. In contrast, for all proposed actions that will have a significant effect on the environment, an agency must prepare an environmental impact statement (EIS). The purpose of an EIS is to provide a full and complete discussion of a project's anticipated environmental impacts and to inform interested parties of reasonable alternatives. Regardless of the finding in an EIS, agencies are not legally required to change their proposed projects because of anticipated adverse environmental impacts.

NEPA provides a broad framework applicable to all federal agencies, but the act is not sufficiently specific about how agencies should address their responsibilities. Consequently, these agencies must

develop their own procedures for implementation. In response to NEPA, USAID issued a Manual Circular on the "Consideration of Environmental Aspects of U.S.-Assisted Capital Projects," in August 1970. Thirteen months later, the agency issued a related Manual Circular on the "Procedure for Environmental Review of Capital Projects."[71] As the titles of the two circulars indicate, the emphasis was exclusively on capital projects such as roads, dams, or irrigation systems. As the first circular noted, it was USAID's policy "to require, during the planning stages of capital projects, consideration and assessment of the direct or potential effects of [the] environmental aspects of each project."

Despite the limited nature of the agency's procedural guidelines, the agency made clear that factors other than the environment would also be considered. In the 1971 circular, for example, the agency noted its intention to comply with NEPA, but then declared that "final decisions concerning [proposed] projects are not properly the responsibility of the United States, but of the requesting country or agency....There is no intent to impose U.S. standards, priorities, or solutions on a foreign government through this procedure."

USAID'S POLICIES ON PESTICIDES, 1971-1975

Although the agency maintained its aversion to imposing U.S. standards on other nations, USAID was concerned about the safe and proper use of pesticides, as indicated in still another Manual Circular, on "Procurement and Use of A.I.D.-Financed Pesticides," which was issued in early 1971.[72] Stressing that the control of pests is essential, the circular stated that the use of synthetic-organic pesticides had "contributed significantly to increased agricultural production and the eradication or control of many diseases" over the previous 25 years. Despite these successes, the circular warned of the potential health and environmental hazards associated with the misuse of pesticides. To address the possibilities, the circular recognized that "increased attention must be devoted to the distribution of pesticides abroad under the U.S. Foreign Assistance Program." The circular thus emphasized the need to "evaluate carefully every proposed use of pesticides and consider available alternatives." Furthermore, before USAID financed pesticides for use in a developing country, the agency's staff was expected to consider the recipient's ability to use the materials safely and effectively and the level of awareness of the hazards associated with the pesticides.

The nature and scope of USAID's procurement of pesticides in the early 1970s puts these recommendations into some perspective. Through the agency's Commodity Import Program (CIP), a form of nonproject assistance, USAID developed, in 1971, a "positive list" of commodities, including pesticides, that were eligible for agency financing.[73] The list of pesticides was modified frequently, and by late 1974, the approved list of pesticides exceeded more than 90 different active ingredients available in almost 275 different packages and unit sizes (USAID 1977).

Among these active ingredients, the agency developed two categories of pesticides that could be purchased. The first category included pesticides, such as chlorpyrifos and malathion, that USAID could finance without the need for review or approval from USAID's headquarters in Washington. A second category of pesticides involved those "of a more toxic or more environmentally degrading nature" that were conditionally eligible for procurement, subject to the host government's written certification and then approval from the agency's headquarters. Illustrative pesticides in the second category included DDT, aldrin, dieldrin, lindane, heptachlor, and methyl bromide.

Although the agency made a distinction among pesticides, it seemingly made little effort to ensure that the pesticides would be used wisely, safely, or appropriately. As the agency later acknowledged (USAID 1977, 17):

> There were no...requirements regarding labeling, directions for use, or safety precautions for conditions prevailing in developing countries, and there were no requirements for labels and use directions to be supplied in the language of recipient countries....[T]he product descriptions in the AID list did not cover permitted

> tolerances for active ingredients....They did not specify storage stability requirements for the pesticide....and special safety considerations such as explosive hazards were not mentioned.

Regardless of the agency's policies outside the United States, the agency was not immune to domestic pressures. Following the U.S. Environmental Protection Agency (USEPA), for example, USAID suspended the procurement of dieldrin in fiscal year 1972 and of aldrin the next fiscal year. After the USEPA canceled the registration of DDT for agricultural purposes in mid-1972, USAID also discontinued financing of that pesticide except for uses (such as for the control of malaria) that the USEPA order did not preclude. Despite these actions, USAID's procurement of pesticides was still substantial (see Table 7.1). The agency estimated that it had financed the purchase (and use in more than 25 countries in Asia, Africa, and Latin America) of more than $100 million in pesticides between July 1, 1969, and June 30, 1975 (USAID 1977). During this period the agency financed all of the pesticides that Ethiopia, Bangladesh, and South Vietnam imported from the United States. As the agency's administrator once informed the U.S. Senate (1975), in order to meet the diverse needs of recipient countries, "every effort is made torovide a sufficiently wide range of eligible pesticides to cope with most problems."

Whatever the intentions associated with these actions, USAID did not believe that NEPA required any formal assessment of the environmental impacts of using these pesticides. The agency asserted that, since any impacts occurring in foreign countries would not significantly affect the environment in the United States, no EIS was required (U.S. Senate 1975). Despite this belief, the chairman of the Council on Environmental Quality, which has responsibility for overseeing agencies' implementation of NEPA, wrote to USAID's administrator in early 1973 urging the agency to complete a programmatic EIS related to the agency's financing of pesticides and other agricultural chemicals. In the chairman's words, three years after NEPA's approval, USAID had yet to complete a single impact statement, and "this position is becoming increasingly difficult to defend both to Congress and to the public" (Train 1973).

LEGAL CHALLENGE

Two years later the agency was required to defend this position. Led by the Environmental Defense Fund (1975), four environmental groups filed suit against USAID alleging that the agency had been negligent in considering the potential environmental impacts of its financing and procurement of pesticides for use in developing countries. The environmental groups were concerned because USAID had provided pesticides through both project and nonproject assistance without a meaningful assessment of the likely environmental impacts (Committee on Health and the Environment, vol. 1, 1988). The environmental groups asked the court to require USAID to produce meaningful guidelines on the environmental assessment of all of the agency's relevant activities and to complete a programmatic EIS on its procurement and distribution of pesticides.

The agency was either unable or unwilling to convince the court of the merits of its position. Responding favorably to the environmental groups, the court required USAID to complete a detailed programmatic EIS on its international pesticide activities and pest management program within ten months (*Environmental Law Reporter* 1976). The court was extraordinarily explicit in specifying the topics that the EIS would have to address. These included:

- An historical description of the agency's pest management program;
- A description of the scope and nature of current and reasonably anticipated pest management programs;
- A comprehensive assessment of these programs' environmental impacts (e.g., effects on humans using pesticides; effects on flora and fauna, effects on pesticide residues in food; and effects caused by the cumulative impact of pesticides);
- An individual description of the pesticides USAID procured for which the registration for use in the United States had been suspended or canceled; and
- An analysis of reasonable alternatives to current programs (e.g., terminating or suspending temporarily all or part of the pest management pro-

Table 7.1 USAID-Financed Pesticides, July 1972 through March 1976

Pesticide	Metric Tons of Active Ingredient	Eligibility Status*
Diazinon	1,280	a
DDT	905	b
Carbaryl	792	a
MSMA	727	b
Toxaphene	484	a
Mancozeb	478	a
Malathion	473	a
2,4-D	434	a
Monocrotophos	389	b
Dichlorvos	324	a
BHC	322	b
Endrin	276	b
Maneb	266	a
Methyl parathion	203	b
Naled	178	a
Propanil	136	a
Carbofuran	126	b
Ethylene dichloride	113	c
Heptachlor	110	b
All others (N=48)	901	
Total (67)	8,917	

Note: The table excludes DDT used to control malaria.

* Eligibility status as of December 1974: a = USAID approved; b = conditionally eligible; c=not listed.

Source: USAID 1976 in USAID 1977.

gram; providing assistance for forms of pest management other than the use of pesticides).

The court also required USAID to discuss within the EIS the pesticides that it would or would not provide as part of the agency's assistance activities. For pesticides that the agency would finance, the court required USAID to specify:

> the limiting factors applicable to those pesticides...including, but not limited to, conditions relating to use, climate, flora, fauna, or geography of areas where each pesticide may be used, handling and packaging, and those efforts which will be undertaken, where possible, to obtain the agreement of host countries and/or international and regional organizations, for the establishment of such data-gathering mechanisms as might be necessary and appropriate to monitor or prevent potential adverse environmental impact associated with pesticide activities collectively and individually (*Environmental Law Reporter* 1976, 20122).

Once decisions were made about what alternatives the agency wished to pursue in its pest management programs, the court further required the agency to develop regulations governing the procurement and use of pesticides.

INTERIM PESTICIDE PROCEDURES

Pending completion of the EIS and new regulations, the agency issued "Interim Pesticide Procedures" (*Federal Register* 1976a) that were designed to guide its employees and to provide clarification about how and when pesticides could be financed. The procedures superseded the "positive list" of pesticides. As the court had required, USAID suspended virtually all financing of DDT, aldrin, dieldrin, chlordane, heptachlor, and 2,4,5-T. Although USAID missions in developing countries could still finance the procurement of other pesticides, the approval process was far more cumbersome than it had been in the past. Virtually every effort to finance pesticides would require review in Washington; the exceptions were few in number. With the concurrence of one of the agency's assistant administrators, a mission director could approve the use of a pesticide for health purposes, but only when "significant health problems [would] occur without the use of the pesticide" (*Federal Register* 1976a, 1297). Pesticides could also be provided for pest outbreaks that constituted an emergency, but only with a prior written determination from USAID's administrator that "the benefits of using the pesticide outweigh the potential adverse effects and that no preferable alternative is available" (*Federal Register* 1976a, 1297).

The interim procedures satisfied the need for change, but the results were probably far less than anticipated. After eighteen months of operating under the interim procedures, USAID concluded that they were too cumbersome. Indeed, the procedures "had the effect of stopping all requests for...restricted pesticides [and] the complete procedure [had] never been invoked since the effective date of the interim regulations" (USAID 1977, 110). There was considerable irony in such a situation. In agreeing to issue new guidelines on the financing of pesticides and to complete an EIS, the agency's goal was to ensure that only appropriate pesticides would be provided to developing countries and that the environmental implications of doing so would also be considered. In fact, however, the interim guidelines had the opposite effect, at least in USAID's view. Although USAID was no longer financing restricted pesticides like heptachlor, other donors with less stringent environmental requirements continued to do so. As USAID explained:

> the net result of the application of domestic United States pesticide regulations and restrictions to AID's activities in less developed countries may not be the use of environmentally more benign pesticides, but a switch to other sources of supply....If AID withdraws from such projects, then the Agency also forgoes the opportunity to assist less developed countries in avoiding unintended and adverse effects of the pesticides concerned (italics added; USAID 1977, 110)

This last point raises an issue that remains today. If the agency's regulations are so stringent that few or no pesticides are provided for agricultural use, but other sources of supply are readily available, does the agency thereby surrender an opportunity to advance its environmental goals? Similarly, is it desirable for USAID to finance some pesticides as part of a environmentally sound pest management strategy or, alternatively, for other sources of supply to provide large quantities of pesticides in the absence of any strategy? Given the incentives for pesticide manufacturers to find new markets for their products and the need to intensify agricultural production in much of the developing world, such questions have particular relevance to USAID's choices.

THE DEVELOPMENT OF USAID'S ENVIRONMENTAL PROCEDURES

Within three months after issuing its interim pesticide procedures, USAID announced its intention to issue comprehensive regulations governing environmental assessment of all of its activities. Although the regulations were intended to place USAID in compliance with NEPA's requirements, the announcement made clear that the regulations were being proposed as a direct result of the Environmental Defense Fund's lawsuit. When the final regulations were published (*Federal Register* 1976b), what is commonly referred to as "Regulation 216" came into force.[74] The regulation's purpose is to "ensure that the environmental consequences of AID-financed activities are identified and considered by AID and the host coun-

try prior to a final decision to proceed and that appropriate environmental safeguards are adopted."

The requirements inherent in Regulation 216 are well discussed elsewhere (e.g., Siew 1988; Ernsdorff 1992), so only a brief summary is provided here.[75] With few exceptions, USAID is responsible for considering the potential environmental impacts of all new projects, programs, or activities that the agency has approved or authorized. The exceptions fall into two categories. First, upon written justification, activities involving international disaster assistance and other emergency circumstances are exempted from the review process. Second, a categorical exclusion is given to projects that do not have an effect on the natural or physical environment. Projects in this category include research, training, most programs involving nutrition, health care, and family planning, and projects in which the agency is a minor donor in a multidonor project.

In contrast, for certain type of activities, such as the development of river basins, drainage and resettlement projects, and power and industrial plants, where past experience has demonstrated a high likelihood of adverse environmental impacts, detailed and comprehensive EAs or EISs must be completed. An EA is a detailed study of "the reasonably foreseeable significant effects, both beneficial and adverse, of a proposed action on the environment of a foreign country or countries." EISs are required when a proposed action may have environmental impacts "on the United States, the global environment, or areas outside the jurisdiction of any nation."

More typically, analysis of a new project or activity begins with the preparation of a brief initial environmental examination (IEE). The IEE's purpose is to provide a first review of "the reasonably foreseeable environmental effects of a proposed action on the environment." An IEE leads to a threshold decision, which is either positive or negative. A positive decision means that the proposed action will have a significant effect on the environment and that an EA or EIS must be completed. A negative threshold decision indicates that the agency does not anticipate that the proposed activity will lead to or cause significant effects on the environment. Nonetheless, monitoring requirements are often imposed in these cases.

IEEs are usually completed at the mission level, but the Bureau Environmental Officer (such as for the Bureau for Asia or Africa) must review them. Absent this officer's approval of an IEE and its threshold decision (especially if it is negative), a project will not be funded unless an assistant administrator decides otherwise. Despite the mandatory review process, the procedures associated with IEEs have been subject to criticism from those (e.g., Ernsdorff 1992) who argue that Regulation 216 provides insufficient guidance to the people who are responsible for preparing them and almost no discussion of what they should contain. Regulation 216 is also vague in defining what constitutes significant effects that would cause a positive threshold decision. Regulation 216 simply states that "a proposed action has a significant effect on the environment if it does significant harm to the environment."

THE PROGRAMMATIC EIS ON USAID'S PEST-MANAGEMENT PROGRAM

As a result of the lawsuit brought by the Environmental Defense Fund in 1975, USAID had agreed to complete a detailed draft EIS on its pest management program by August 21, 1976, and a final EIS no more than fifteen weeks later. The draft EIS was finished in late September 1976 (USAID 1976) and then circulated for review and comment to special interest groups, the WHO, the FAO, and to all governments that were potential recipients of USAID-financed pesticides. After receiving scores of comments, the agency published the final EIS in May 1977 (USAID 1977).

The final EIS was long, substantively comprehensive, and remarkably frank in recognizing the deficiencies associated with the agency's pest management program. In accordance with the court's directive, the EIS discussed the program's history, an assessment of the likely environmental impacts of it, and an analysis of reasonable alternatives, of which there were five (see Table 7.2). The alternatives ranged from a continuation of activities as they were prior to the lawsuit to a complete elimination of all pest-

Table 7.2 Alternatives for USAID's Pest Management Program

Alternative	Program Elements	Regulatory Restrictions
A	Pesticide Activities,[a] Training / Technical Assistance, Research, and Other Pest Management Activities	USAID Regulations[b] plus USAID Environmental Procedures (Regulation 216)[c]
B	"Modified" Pesticide Activities; with full Training/Technical Assistance, Research, and Other Pest Activities.	Regulation 216,[c] USAID Regulations,[d] plus risk-benefit analysis of each pesticide activity.
C	"Restricted" Pesticide Activities; with full Training/Technical Assistance, Research, and Other Pest Management Activities.	Regulation 216,[c] USAID Regulations,[d] plus the restrictions of the Stipulation and Court Order of December 5, 1975.
D	No pesticide activities; with full Training/Technical Assistance, Research, and Other Pest Management Activities.	Regulation 216[c]
E	No pest management program.	Regulation 216[c]

[a] Pesticide activity involves all activities conducted, supported, financed, or otherwise assisted by USAID, which includes the procurement or use of pesticides, but does not include pesticide research and pesticide regulatory activities.

[b] USAID regulations and methods for pesticide procurement and use as they existed immediately prior to the stipulation and Court Order of December 5, 1975.

[c] *Federal Register* 1976b.

[d] The same regulatory restrictions set forth in footnote b, except the use of the historical commodity eligibility list for pesticides would not apply.

Source: USAID 1977.

management activities within the agency. After a thorough evaluation of each alternative, Alternative B was deemed to be the most desirable.

Alternative B included the continued financing of pesticides on a case-by-case basis (and not on the basis of an approved commodity list) and then only after specific additional evaluation that would "consider the potential benefits conferred by the use of the proposed pesticide, the availability of efficacious substitutes (pesticides or pest management activities), costs of control, and the extent of human and environmental risks involved" (USAID 1977, 281). Furthermore, the "scope and depth of the evaluation required for the approval of a given pesticide in any AID activity will be governed by its current [USEPA] regulatory status." As an example, if a country requested financing for pesticides, it would be encouraged to use products registered for the same or similar uses in the United States. If no such products existed, the environmental review requirements would become progressively more stringent as one moved from previously registered to never registered pesticides (see Table 7.3). Even given the various review stages, the EIS further noted that USAID's first response to a request for pesticides would be to discourage such a request unless the pesticides were "to be used in economically and ecologically sound [IPM] systems" (USAID 1977, 334).

Table 7.3 Classification of Candidate Pesticides for Specific Evaluation

Categorization in terms of Proposed Use and USEPA Regulatory Status	Review Requirements in accordance with USAID Regulation 216
1. Pesticide to be used for research or limited field evaluation purposes only, irrespective of its current regulatory status in United States.	IEE[b]
2. Projects involving demonstration or use of pesticides for specified use:	IEE[b]
(a) Pesticide registered for same or similar uses[a] in the United States without restrictions.	IEE[b]
(b) Pesticide registered for same or similar uses[a] in United States, restricted on basis of user hazard.	IEE and, if approved, user hazard warning to and certification of awareness from recipient[b]
(c) Pesticide registered for same or similar uses[a] in the United States, restricted on basis of environmental hazard.	IEE plus EA or EIS[c]
(d) Pesticide registered for same or similar uses[a] but currently under presumption against re-registration notice of intent to cancel or subsequent notice of intent to suspend issued by USEPA.	IEE plus EA or EIS,[c] and, if approved, notice of impending action to recipient.
(e) Pesticide previously registered for same or similar uses[a] but cancelled for environmental hazard.	IEE plus EA or EIS[c]
(f) Pesticide previously registered for same or similar uses[a] but cancelled for health reasons.	IEE plus EA or EIS[c]
(g) Pesticide registered for a different use in United States.	IEE plus EA or EIS[c]
(h) Pesticide not registered for any use in United States, but tolerances established.	IEE plus EA or EIS[c]
(i) Pesticide not registered for any use in United States, no tolerances established.	IEE plus EA or EIS[c]

[a] Similar use is defined to include the use of a substantially similar formulation in a comparable use pattern. The term use pattern includes target pest, crop or animals treated, application site, and application technique, rate, and frequency.

[b] Pesticides in this category will not ordinarily be subject to further analysis; however, the decision to undertake such analysis will be made on a case-by-case basis.

[c] Pesticides in this category will, following the Initial Environmental Examination, automatically trigger an Environmental Assessment as a minimum or an Environmental Impact Statement, the choice of which will continue to be governed by USAID Regulation 216.

Source: USAID 1976a.

This scheme had several appealing features. On the one hand, Alternative B recognized that pesticides have a potential (though not necessarily primary) role in managing pests in developing countries. This observation may have particular relevance to Africa. Many of its farmers use either no pesticides or substantial amounts of egregiously "inappropriate" pesticides. Consequently, the availability of even small amounts of environmentally appropriate pesticides used properly might contribute to meaningful increases in production in a region that is especially prone to pest-related crop losses. As the EIS observed, pest control on plots of subsistence farmers "can result in substantial increases in production yields...." (USAID 1977, 273). Moreover, USAID's financing of selected pesticides in the context of an IPM system would partially address the problem noted above, namely that USAID would forfeit any opportunity to influence pest management strategies if it was not an actor in the process.

On the other hand, the alternative recognized that pest problems in developing countries do not mirror exactly those found in the United States. Whereas some pesticides might be entirely inappropriate for use in the United States and thus not registered with the USEPA, these pesticides might be ideal for tsetse flies or desert locusts in Africa. Similarly, developing countries have crops, diseases, habitats, and other pests that are not found in the United States.[76] The implication, of course, is that the registration status of pesticides in the United States should not routinely or automatically apply to developing countries because the conditions in them are often considerably different than in the United States.

The EIS also discussed the agency's intended future pest management strategies. IPM was placed at the heart of these strategies. As the EIS declared, "Establishment of integrated pest management systems and promotion of integrated pest management concepts, principles, and methods will be an integral part of USAID's future pest management activities" (USAID 1977, 333). According to the EIS, other elements of USAID's future strategy included the strengthening of pest-management infrastructures in developing countries, improvements in schemes for regulation of pesticide usage, the monitoring of the human and environmental effects of pesticides, and efforts to exert a greater degree of U.S. leadership among the international community. Finally, the EIS indicated that USAID would no longer finance the procurement of pesticides through nonproject assistance (i.e., through its Commodity Import Program) except in emergencies or in other special circumstances.

USAID'S POLICY ON PESTICIDE SUPPORT

The EIS on the agency's pest management programs admitted a major deficiency in the agency's operations. While acknowledging that USAID had financed the purchase of millions of dollars of pesticides throughout the developing world, the agency conceded that it had done so in the absence of a comprehensive pest management policy. In lieu of such a policy, the agency confessed that it had operated on the basis of a "number of essentially isolated pesticide and pest management activities which had diverse origins and objectives" (USAID 1977, 338).

To remedy this deficiency, USAID took two major steps. First, it revoked the interim pesticides procedures issued in January 1976 and revised Regulation 216 (*Federal Register* 1978) to add supplemental procedures for the environmental assessment of all proposed projects involving assistance for the procurement and use of pesticides. These procedures can be found in Appendix D. The new procedures outlined the environmental review procedures that would be associated with the financing of pesticides through project assistance. In many respects the procedures reflected the intent of Alternative B in the programmatic EIS. In all instances an IEE is required, and it must "evaluate the economic, social and environmental risks and benefits of the planned pesticide use to determine whether the use may result in significant environmental impact." If this IEE indicates that the use of pesticides "will significantly affect the human environment," then either an environmental assessment or an environmental impact statement may be required. If pesticides are deemed suitable for use, then USAID can provide only products that are registered (preferably with the same or similar use without restrictions) with the USEPA.

For project assistance, exceptions to the assessment procedures involve: a) emergency conditions, such as a pest outbreak or "when significant economic problems will occur without the prompt use of the proposed pesticide"; and b) projects in which USAID is a minor donor.[77] For nonproject assistance, there are only two instances in which pesticides can be provided, and both require written approval from the agency's administrator. Emergencies constitute one condition; the other involves "compelling circumstances... such that failure to provide the proposed assistance would seriously impede the attainment of U.S. foreign policy objectives or the objectives of the foreign assistance program" (*Federal Register* 1978; 1980).[78] Compelling circumstances include "only those most serious situations in which no other way exists to provide the pesticide except through the nonproject assistance program" (USAID 1989, 122). In addition, consideration of these situations must also consider safety of past use of pesticides in the recipient country.

While the revised regulations may be well-suited for instances in which the direct procurement of pesticides is considered, the revised procedures are less relevant and helpful for nonproject assistance involving policy reforms. The regulations implicitly consider nonproject assistance to be limited to the direct purchase of commodities (including pesticides), but the procedures do not satisfactorily address USAID's obligations when a recipient uses cash transfers to procure pesticides (or uses these transfers to free other resources that are then used to purchase pesticides).

Second, USAID issued a seven-page "Policy on Pesticide Support" in May 1978 (USAID 1978).[79] In its introduction, the policy statement declared "that the proper selection and use of pesticides can contribute to increased agricultural productivity and improved public health." Having noted this as well as the likelihood of a large increase in pesticide consumption in developing countries, the policy statement stressed the need to de-emphasize the exclusive reliance on pesticides in managing pests. Much of the rest of the document reflected the intent (and, in many instances, the exact wording) of the EIS in regard to the agency's strategy for pest management. As an illustration, the document declared that USAID's policy would be to establish wherever possible "programs aimed at assisting developing countries in designing and operating economically and environmentally sound [IPM] systems and procedures in which pesticides will be used only when necessary" (USAID 1978, 4).

Although again noting that the agency would no longer finance pesticides through nonproject assistance except in emergencies or "cases of compelling circumstances," the policy statement did not preclude USAID financing of pesticides through other means, such as project assistance. The explanation for this preference was consistency with past concerns. The policy statement recognized once again that many developing countries can obtain pesticides from U.S. manufacturers without USAID's assistance and without having to comply with or subscribe to the agency's environmental criteria. If these countries obtained pesticides with USAID's assistance, then at least some environmental concerns would be considered. Without USAID's direct financing, the agency could not make such assurances.

RECONSIDERATION

By 1985, seven years after the issuance of the policy statement on pesticides, USAID's experience with implementation led it to consider revisions. Both the guidelines and the Regulation 216 strongly discourage the procurement of pesticides through nonproject assistance. The procedural barriers to doing so are high and, as noted earlier, the agency's administrator is required to provide written approval for each request. Thus, through 1985, only one justification had been approved, and that was for the emergency use of pesticides in a disaster relief program in Bolivia (Brady 1985; Committee on Health and the Environment, vol. 1, 1988).[80]

Due to the infrequency of approval and requests from USAID/Egypt and USAID/Mozambique (see Box 7.1) to procure pesticides through nonproject assistance, USAID established a Task Force on Pesticide Procurement under Commodity Import Programs in early 1985. The Task Force's purpose was to provide guidance to the agency's administrator on how to evaluate such

requests. Concluding that, "when properly used, pesticides can play an important role in increasing agricultural productivity," the Task Force recommended that the agency approve the procurement of pesticides through nonproject assistance when "it is legally acceptable, if misuse can be prevented under non-project assistance, and it is used in a creative way to promote an improvement in conditions of pesticide use in developing countries" (Brady 1985). A subsequent, independent review of USAID's policies on industrial and agricultural chemicals recommended approval of such a change "especially in the face of substantial evidence that other countries provide pesticides readily if the U.S. does not" (Committee on Health and the Environment, vol. 1, 1988, 66).[81]

To achieve the desired change and to allow USAID to provide pesticides more easily through nonproject

Box 7.1 USAID/Mozambique's Request for Pesticides through Nonproject Assistance

As the discussion of USAID's policies on pesticides indicates, the agency is not an enthusiastic provider of pesticides. However meritorious a request for pesticides may be, the agency wants to ensure that they are provided only under the most stringent conditions and in complete accordance with the requirements of Regulation 216. In this regard, USAID/Mozambique's efforts to obtain approval for the purchase of pesticides provides an interesting comparison to the approach that JICA uses.

In the midst of a protracted drought and a devastating civil war in the mid-1980s, agriculture in Mozambique had virtually collapsed. Production of rice, which had reached 56,000 metric tons in 1979, had dropped to approximately 12,500 metric tons by 1985. Other major crops experienced similar declines. In an effort to address these problems, the Government of Mozambique approached several bilateral and U.N. development agencies and asked for assistance in providing agricultural inputs that would be used to encourage the development of the private sector. To support this initiative, USAID officials with responsibility for Mozambique sought approval to procure pesticides as part of USAID's Commodity Import Program, which represents a form of nonproject assistance (Edelman 1985).

This was not a decision made in haste. To justify the request, several pesticide experts visited Mozambique to determine whether donated pesticides could be used properly in the country. The experts assisted in the completion of an initial environmental examination, and they recommended that procurement be approved together with training on pesticide use and IPM.

The request to the agency's administrator attempted to make a compelling case. "The severe shortages of foreign exchange and the Government's previous preference for state farms have resulted," the request noted, "in practically no inputs having been provided to private farmers in recent years." The request also stated that:

> Most markets and shops are almost empty of food to buy....Dangerously large food shortages are expected to continue....To meet this emergency need, serious pest problems have to be overcome on the private farms. Pesticides...are essential to increase food production substantially (Edelman 1985).

The pesticides, valued at approximately $400,000, would not be provided in a regulatory vacuum. The Government of Mozambique agreed to: a) provide training to ensure the proper handling and safe use of the donated pesticides; and b) a monitoring and evaluation program to assess their distribution and use. In addition, the Government had developed a new pesticide registration scheme based on FAO guidelines.

Contrary to the recommendations of its experts on pest management and the seemingly strong case made, USAID declined to provide pesticides to Mozambique.

assistance, the Task Force recognized the need to have the support of the environmental community, especially the special interest groups that had sued the agency in the mid 1970s. Such support was not forthcoming. There were concerns that "safe" pesticides could not be readily defined, that there were no means to guarantee adequate funds for or attention to IPM or pesticide safety, and apprehension about the agency's ability to impose and enforce environmental conditions on the recipients (Committee on Health and the Environment, vol. 1, 1988). In the face of such opposition, the agency withdrew its proposal to loosen the requirements associated with the procurement of pesticides through nonproject assistance.

FURTHER CLARIFICATION AND RE-EMPHASIS

USAID's (1988a) policy paper on environment and natural resources stated the agency's intention to ensure that all of its development-assistance activities benefit from environmental review. More specifically, the policy paper also emphasized that sustainable agriculture is dependent upon proper use, storage, and disposal of agricultural chemicals. Declaring that USAID's policy is to support increased reliance on IPM, the policy paper indicated that this would lead to efforts to:

- reduce the use of chemical pesticides to the fullest extent practicable;
- use only those pesticides which are proven to be safest to the environment and people;
- discourage general requests for pesticides, and assure that pesticides are used in conjunction with natural control programs (USAID 1988a, 7).

This statement recognizes the utility of pesticides but interestingly does not make a distinction between their use through project versus direct procurement of pesticides through nonproject assistance.[82] In contrast, and as noted above, USAID's environmental procedures do make such a distinction.

Equally important, the Policy Paper represents USAID's most recent declaration of its policies on pesticides and IPM. Subsequent documents either restate existing policies (e.g., USAID 1990, 1991c, 1991d; Consortium for International Crop Protection 1991) or subsume consideration of these issues as part of larger discussions about the need to manage natural and environmental resources sustainably (e.g., USAID 1992b, 1994). This situation has important implications for nonproject assistance that attempts to increase agricultural production. Despite an unparalleled dependence on a policy-based approach to nonproject assistance since the late 1980s, USAID has not re-examined its approaches to pest and pesticide management during that period. Consequently, USAID's current procedures are largely directed toward the control and management of commodity-based nonproject assistance rather than toward policy-based reforms.

USAID AND IPM

USAID can point to substantial and sustained involvement with projects designed to increase reliance on IPM in developing countries. Indeed, the agency's experience began at least in the early 1970s with the establishment of an "Integrated Pest Management and Environmental Protection Project." Although the name of the project has varied since its inception, related activities continued until 1990. When the project was established, it purpose was to assist USAID to develop, implement, and evaluate projects related to pest management (USAID 1990). In the latter phase, the project conducted training programs for over 5,000 participants, provided technical assistance on pest programs, and provided research related to IPM in developing countries.

Perhaps one of USAID's more successful efforts with IPM is found in Indonesia, where the agency's support for a multidonor effort has enabled thousands of farmers to reduce their use of pesticides on rice while increasing their productivity. Other IPM-related programs that USAID supports are found in Central America, where, since 1983, the agency has supported activities related to training, research, and extension. A major accomplishment of this initiative

is the establishment of an undergraduate program in pest management at the Panamerican Agricultural School. The program emphasizes IPM (USAID 1990). In late 1993, USAID started still another project, a Cooperative Research Support Program on IPM, through which it will provide $7.5 million over five years to several organizations to promote the development and utilization of IPM in developing countries. Many other IPM projects can be summarized (e.g., see USAID 1990; 1993), but they all point to substantial efforts to increase its use.[83]

There is considerable irony in USAID's efforts. On the one hand, as already noted, the agency can demonstrate a long-standing commitment to concerns for potential impacts on the environment as well as sustained interest in and support of IPM. On the other hand, there has been considerable critical review of USAID's efforts. In 1988, as an illustration, the Committee on Health and the Environment (1988) and the Conservation Foundation completed a report on *Opportunities to Assist Developing Countries in the Proper Use of Agricultural and Industrial Chemicals* in response to a requirement in the Foreign Assistance Appropriation Act of 1987. Although the report commended the agency's efforts to reduce the use of pesticides in developing countries and labeled the agency as "one of the most environmentally conscious members of the international development assistance community," the report also noted that USAID had insufficient professional staff and expertise to implement its IPM policies effectively. In addition, the report observed, in order to avoid USAID's stringent environmental standards associated with Regulation 216, some USAID staff in developing countries simply asked other donors to provide pesticides for USAID-funded projects.

The following year, the U.S. House of Representatives' (1989) Committee on Appropriations similarly recognized USAID's commitment to IPM but then suggested that the agency was not giving sufficient attention to "non-chemical, scientifically based pest control technologies." Commenting on USAID's response to an infestation of desert locusts in Africa in the late 1980s, the U.S. Senate also found fault with the agency's approach to pest management:

> it is clear that neither the Office of Foreign Disaster Assistance..., nor AID's Africa Bureau, were prepared to meet the challenge of a major pest infestation. Bureaucratic inertia and a lack of leadership delayed the creation and implementation of an effective insect policy (U.S. Senate 1989, 91).

To remedy this and other perceived deficiencies, the Senate recommended that USAID establish a permanent IPM task force "to coordinate and execute planning and research on the problems of insect infestation, with a special focus on Africa" (U.S. Senate 1989, 90).[84] The Senate also stressed that the United States has the capacity to provide leadership in developing long-term pest-management strategies for Africa. In order to do so, however, the Senate believed that USAID would be required to make "significant changes" in its approach and to strengthen its in-house scientific capability.

A report by the Office of Technology Assessment (1990, 89) reached similar conclusions, namely that the "changes needed to improve USAID's approach to pest management are substantial enough to require a shift in the way the agency views the goals of pest management and the ways in which those goals are implemented." Furthermore, the OTA report judged that many USAID officials do not believe that IPM is an effective strategy for controlling agricultural pests. Still another independent assessment of USAID's policies on pesticides and IPM (National Research Council 1992) also concluded that a lack of recognition of IPM's importance among USAID officials at all levels deters further use of the technology.

In addition to devoting resources to the development and spread of IPM, USAID can also point to its considerable funding of the Consultative Group on International Agricultural Research and many bilateral and regional farming-systems and agricultural research projects. All of these initiatives provide opportunities to influence and encourage environmentally appropriate agricultural technologies.

MONITORING AND EVALUATION

Although there exists considerable requirements for the evaluation of nearly all of USAID's activities, the agency has been criticized for the lack of a comprehensive evaluation system for measuring the results of its efforts (U.S. General Accounting Office 1993b). At least through the late 1980s, this problem was evident with USAID's consideration of the environmental impacts of its activities. As noted above, USAID must assess the reasonably foreseeable environmental impacts of most activities it intends to implement, but such assessments are normally conducted before projects begin and represent prospective judgments about what impacts might occur. In contrast, there has not been an effective system to evaluate environmental consequences systematically after projects have been completed. As an illustration, after reviewing more than 200 evaluations of agency activities, the agency's Center for Development Information and Evaluation concluded that: "Environmental and natural resource management are not generally addressed fully during design, implementation, or evaluation of A.I.D. projects" (USAID 1988b, 91). A subsequent report (USAID 1989) examined nearly 300 evaluations and found that three-quarters ignored environmental issues entirely; another 17 percent addressed these issues only minimally.

Given USAID's commitment to sustainable development, the agency can ill afford to ignore the environmental consequences of its activities. Equally important, USAID is also obligated legally to consider these consequences, at least in regard to its policy-reform initiatives in Africa. The legislation that established the Development Fund for Africa requires USAID to protect "long-term environmental interests from possible negative consequences" of policy reforms. In response to this mandate, the USAID's Bureau for Africa is encouraging its missions to develop and implement comprehensive environmental monitoring, evaluation, and mitigation plans (EMEMPs), especially for major activities involving nonproject assistance (Hecht 1994). Such efforts began in 1992, so it is not yet possible to judge whether EMEMPs will address satisfactorily the problems and concerns that have lead to their creation. One difficulty already encountered, however, is that of establishing a relation between assisted program activities, especially policy reforms, and environmental outcomes (World Bank 1994; Rock 1995).

CONCLUSIONS

This review of USAID's policies on the environment and pest management suggest several conclusions. Among the most important is the realization that USAID probably has the most thorough and most stringent procedures for both environmental assessment and the provision of pesticides (Committee on Health and the Environment, vol. 1, 1988; Office of Technology Assessment 1990). Regulation 216 specifies in considerable detail what USAID must do if it wishes to provide pesticides to developing countries. The procedures are especially stringent in regard to nonproject assistance. No other bilateral donor is subject to such detail or procedural hurdles, yet several of these donors provide pesticides. Here again there is irony. While there is widespread recognition that pesticides, when used safely and wisely, represent a potentially valuable weapon in the quest to conquer pests, USAID's preferences and procedures have virtually prevented the tool's use. The paradox is complicated further because USAID is increasingly turning to nonproject assistance and associated policy reforms to stimulate agricultural production in Africa. If USAID is unwilling to provide pesticides directly to achieve such increases (or to allow reliance on them through policy-based reforms), this does not mean that other donors (with potentially less rigorous environmental guidelines) are also unwilling to approve their use. As JICA's experience in Africa reveals, however committed African governments may be to reductions in the risks inherent in the use of pesticides, or to increased use of IPM, these governments still value pesticides, routinely request them, and expect their farmers to use them. Consequently, however successful recommended policy reforms may be, USAID may not achieve a desired

objective, safe use of pesticides, when other donors pursue policies that may undermine this objective.

This situation suggests the desirability of USAID's reconsideration of its present policies on pesticides. The framers of Regulation 216 did not intend to prohibit the use of pesticides via nonproject assistance, but that has been the result. Over the last 20 years only one request to provide pesticides through nonproject assistance has been approved, and that was for an emergency. If changes in policies regarding agricultural production are dependent on policy dialogue, does USAID strengthen its position by imposing a virtual ban on pesticides, and can it rationalize the use of pesticides through policy reforms alone? Policy dialogue can occur without reference to or application of Regulation 216, but its requirements appear to create such a formidable barrier that some agency field officers are arguably reluctant to raise or address pesticide-related issues and interventions. Moreover, to the extent that pesticides are a meaningful component of IPM (Natural Resources Institute 1992a), does current USAID policy minimize the agency's opportunities to increase the technology's use? If the recurring expectation is that USAID should provide global leadership in regard to pest management, can it do so when its officials are reluctant to engage in dialogue and "automatically" decline requests for assistance, however meritorious or necessary? Other bilateral donors are no less concerned about the environmental consequences of pesticides and increased agricultural production, yet they find it possible to reconcile the use and indirect funding of pesticides with sound environmental management. Is this also possible for USAID?

8. Summary and Conclusions

Major bilateral donors readily agree on the need to stimulate agricultural trade and production in Africa, but there is considerably less consensus about how this should be done and how much (and what kind of) attention should be devoted to the environmental consequences of doing so. Moreover, donors' approaches to nonproject assistance are as varied as is the form of assistance itself. Nonproject assistance can involve the direct donation of pesticides (or other commodities) as well as assistance linked to policy reforms; similarly, nonproject assistance can involve either loans or grants. The various permutations thus preclude easy generalization. Nonetheless, it is useful to summarize briefly how the five donor nations "answer" the six questions raised in the first chapter.

What environmental policies or procedures govern donors' efforts to promote agricultural trade or production policies in Africa, and what is the relation between intent and implementation?

Germany, the United Kingdom, and the United States have detailed guidelines or regulations that mandate donors' attention to environmental issues at all stages of a project cycle. Japan has specialized guidelines that apply to certain types of agricultural projects, but the expectation is that the recipient country will apply the guidelines and then judge whether the potential impacts are acceptable. In contrast, France has yet to promulgate specific environmental assessment procedures for its foreign assistance involving agricultural trade and production.

It is easy to identify the existence of appropriate policies but far more difficult to ascertain their effectiveness. Donors' environmental assessments are frequently not available to the public, and no effective way exists to provide independent verification of reported results. More important, even the best environmental guidelines are deficient in regard to assessing the likely environmental implications of policy-based reforms, which typically have diffuse and potentially unanticipated consequences. These reasons provide at least part of the explanation for the lack of detailed studies that examine the relations between policy reforms in the agricultural sector and the implications of these reforms on pest management. At the least, appropriate methodologies are absent or the cost of assessing the possible pest-related implications of agricultural trade and production policies is deemed to be exorbitant.

How do donors attempt to identify and mitigate the potential adverse environmental impacts of their policies designed to stimulate agricultural trade and production?

All five nations attempt to ensure that the potential adverse environmental impacts associated with their foreign assistance activities are identified. Having reached such a conclusion, it is necessary to add an important caveat. No donor wants to be associated with adverse environmental impacts (or to fund activities that cause them), but donors also assume varying degrees of responsibility for potential impacts as well as for their mitigation. If, for example, an environmental assessment identifies a potential negative impact, whose responsibility is it to mitigate that impact? This is a central question, and donors' answers do not necessarily agree. One perspective places responsibility with the recipients of assistance and assumes that, as sovereign entities, they should be allowed to determine what level of adverse environmental impact they are willing to tolerate in their quest for development. JICA is a prime advocate of such an approach; it believes that recipients should have prime responsibility for assessing potential environmental impacts and for judging whether these impacts are tolerable and acceptable.

A competing perspective suggests that donors should apply their environmental values and assume responsibility for preventing especially egregious environmental harms. Germany, the United Kingdom, and

the United States (after the 1960s) have adopted this approach. These countries will typically not fund activities if they deem potential environmental harms to be significant or irreversible. In addition, Germany and the United States emphasize the need for monitoring of anticipated environmental consequences.

If conditionality is a component of assistance in the agricultural sector, are environmental conditions included, and how are they monitored and enforced? Lack of comparable information from the five countries makes this questions difficult to answer. Nonetheless, to the extent that donors' policy-based assistance is linked to the World Bank's structural or sectoral adjustment loans, all five donors rely on some conditionality (although not necessarily related to the environment). France and Japan appear to be the least enthusiastic about the imposition of environmental conditions whereas the United Kingdom and the United States are more willing to do so.

If assistance for agriculture includes the procurement or provision of pesticides: a) do donors impose limits or restrictions on the pesticides that are provided and how they are used; and b) at what point in the use cycle do donors' obligations end?

Japan is the single largest donor of pesticides, and it imposes few (or no) environmental constraints on their use. Japan's expectation is that donated pesticides will be used wisely and in an environmentally sound manner, but JICA is not well equipped to determine whether such use actually occurs. Once JICA donates pesticides, it cedes responsibility for their appropriate use, storage, and disposal to the recipient government. In contrast, France and the United States do not provide pesticides for routine agricultural purposes, but both have been active players in the disposal of outdated stocks in sub-Saharan Africa. Germany and the United Kingdom are occasionally responsive to requests for pesticides but then provide limited quantities only after rigorous review and assessment and in accordance with the FAO's Code of Conduct. The GTZ assumes that it has a continuing role to play after it donates pesticides; the GTZ has been involved with the disposal of obsolete pesticides even when it did not supply them.

As donors encourage and African governments to implement policy-reform programs that affect agriculture, to what extent is consideration given to the indirect implications for pesticides?

To the extent that the pesticide-related implications of policy-reform programs are readily evident, all donors consider these implications, although the level and detail of effort varies among donors. Despite this statement, it is also the case that donors typically give far less attention to the indirect implications for pesticides. Policies designed to stimulate agricultural trade or production do not necessarily have goals that are primarily environmental; the quest is to stimulate production by changing the rules of the agricultural game. Although donors have some sense of what rules should be changed, there is usually much less certainty about the secondary and indirect consequences of the changed rules, particularly because multiple donors typically seek multiple changes in policies. Accordingly, it is difficult to separate the consequences of one policy change from that of other related changes. As an illustration, the removal of subsidies can discourage pesticide use while an emphasis on crops for export is likely to encourage pesticide use. In such a case, the total volume of pesticides may remain relatively stable, but there may be considerable changes in the location and nature of the pesticides used. Similarly, the removal of subsidies may mean a diminished role for governments in a country's agricultural sector but farmers may look elsewhere for pesticides. A donor concluding that pesticide use has been rationalized because of this decreased government role may reach a wrong conclusion if inappropriate pesticides are used in greater quantities by farmers who no longer have access to proper equipment for applying pesticides or who acquire pesticides from dubious sources.

To what extent do donors consider or encourage reliance on IPM as a viable strategy for pest management?

The United States and the European donors are active advocates of IPM, although the latter in particular appear to be skeptical of the feasibility of increasing the technology's widespread use in Africa. While readily acknowledging IPM's appeal, repre-

sentatives of donor agencies in France, Germany, and the United Kingdom agree that IPM is not a scheme that can be easily or readily transferred to most African farmers. JICA appears to share this skepticism, which seemingly discourages the agency's support of projects to support IPM's diffusion or application.

This common conclusion has potentially important implications for the advocates of IPM in developing countries. While critics can rightfully contend that not enough resources are devoted to IPM in Africa (and that donors have failed to impose IPM-related conditions on their agriculturally related policies), the issue is not one solely of finances or good intentions. If this were the case, the use of IPM would be widespread throughout much of Africa, in large part due to the concerted efforts of the British, French, and Germans. IPM's limited application has many explanations, and not all of these are subject to donors' direct (or even indirect) control.

Answers to these questions neither exhaust the possible comparisons among the five donor nations nor the need for further analysis. To the extent that these donors wish to be more environmentally conscious in their agriculturally related activities, there is much they can do collectively. First, there is an obvious need for improved coordination (which is always the case with foreign assistance). As an illustration, recipient governments rarely receive a clear message from donors about preferred strategies for pest management. Donors routinely convey different messages, and recipients can be selective about which messages they choose to hear.

This issue reflects a larger concern as well. Although pest management and the proper choice of pesticides may be of central concern to certain donors, the use or misuse of pesticides is not seen as a major environmental problem in many parts of Africa. Far more people die or become ill because of malaria, dysentery, or AIDS, and the virtual absence of information on the ecological effects of pesticides masks whatever problems exist. As one of the NRI's researchers emphasized, the use of pesticides should be viewed from an African perspective rather than from a European or American one. In this researcher's opinion, "everyone in Europe is strong on preaching" about the wise use of pesticides in Africa, and donors' apprehension about pesticides and the environment may reflect domestic political priorities as much as legitimate concern about the pesticides. To counter this trend, the researcher recommended that donors adopt a pragmatic approach, consider the recipient's perspective, and assess comparative risks rather than making blanket rules that consider pesticides in isolation from the other variables affecting African agriculture and livelihoods. Here the example of DDT may be relevant. Most donor agencies prohibit the purchase of the pesticide based on research in temperate areas. In fact, however, DDT may be appropriate for tsetse flies when there is no appropriate and affordable substitute. Admittedly, alternative technologies for the control of tsetse fly are becoming increasingly available. Despite these advances, DDT still has accepted uses in malaria control and serves as an effective repellant when used to treat the walls of dwellings.

Second, donors should increase their understanding of the pesticide-related implications of structural adjustment programs (and, by extension, nonproject assistance). Increased reliance on IPM or other pest-management technologies (such as microbial pesticides) is contingent upon considerable research, education, and the strengthening of local institutional capacity. Research is often a victim of the budget cuts that adjustment programs impose on African governments. This is unfortunate because many innovations in pest management have their source with basic research, which is primarily the domain of the public sector. In the short run, private industry seemingly has little incentive to develop technologies that will reduce the sales of pesticides.

In contrast, if adjustment programs have their intended effects on policies and economies, African farmers may find that they have more money to purchase pesticides. For example, if price controls are lifted on food crops, then farmers will have an incentive to produce more. Increased reliance on pesticides may produce a quick way to do so, particularly because the use of pesticides among small-scale farmers in Africa is low by virtually any standard. Similarly, privatization may increase the range of products avail-

able to farmers, but only if the products are affordable and available. Given the multinational agrichemical industry's minimal interest in Africa (Szmedra 1994), farmers seeking pesticides may turn to loosely regulated local formulators or to the virtually unregulated and informal cross-border trade in pesticides that are improperly labeled and identified. To the extent that agribusinesses do express interest in Africa, they will likely concentrate their activities in areas where demand is high and distribution costs are low. Thus, farmers living in remote areas will likely have less access to pesticides than in the past.

Third, donors can attempt to address some of these potential problems with pest management in a more systematic manner than they have in the past. Several donor agencies can be applauded for their emphasis on pest management and the diffusion of IPM, but such efforts are only occasionally linked to nonproject assistance that attempts to stimulate agricultural trade or production. Although the existing evidence is both mixed and inconclusive, some data do suggest that agriculturally based nonproject assistance proceeds without much attention devoted to how pests will be managed or even how the assistance will affect the needs for different approaches to pest management.

Although there is much more that donors can do, it is equally important to note that other key actors exist. Chief among these are African governments. All donor assistance is intended to be temporary, and by definition all policy-based assistance requires the consent and cooperation of recipient governments. It is these governments that will ultimately decide which agricultural projects will move forward and how and whether their implementation will affect pest management. The evidence to date suggests that nonproject assistance has not yet had a major impact on preferences for pesticides in most African countries. Many African governments routinely ask for donated pesticides from the Japanese, and other donors' policy-based assistance for agriculture often neglects concern for pest management. For pest-management strategies to improve and for there to be greater reliance on IPM than now exists, African governments will have to take the lead. Donors can prod and cajole, but Africans must decide whether and how they wish to improve their management of pests.

Notes

1. Unless noted to the contrary, all further references to Africa are intended to apply only to sub-Saharan Africa. The analysis intentionally excludes attention, except in a generic sense, to the use of pesticides for public health purposes or the emergency control of locusts or grasshoppers. More information on the latter issue can be found in Office of Technology Assessment (OTA 1990).

2. For example, Section 496(h)(2)(B) of the U.S. Foreign Assistance Act requires USAID to ensure that policy reforms include provisions to protect "long-term environmental interests from possible negative consequences of the reforms."

3. An alternative argument suggests that, while donors do have a responsibility for what they finance, the activities still remain those of the recipient country.

4. National agencies are not the only ones prone to confidentiality. The author was given access to documents from the Organization for Economic Co-operation and Development (OECD) on the condition that the source of the information not be cited. Thus, while this report reflects the information contained in many of these documents, appropriate citations are not provided.

5. The results of a series of studies on agriculture in six African countries in the 1980s indicate that "agricultural production [in sub-Saharan Africa] has generally grown as a result of expansion of cropped area, and, to a lesser extent, changes in cropping patterns--both processes, in turn, spurred by rapid population growth" (Lele 1990, 7, 9).

6. In some countries in sub-Saharan Africa, some analyses (e.g., Netherlands Ministry of Foreign Affairs 1991, 222) suggest that "governments have opted for monocultures of export crops. Although these yielded higher income for the short-term the long-term result was environmental degradation. Food crops were displaced and forced onto marginal land."

7. In a study of the World Bank's structural or sectoral adjustment loans to 43 countries between 1978 and 1987, Sebastian and Alicbusan (1989) found that 28 of the countries were expected to remove or reduce subsidies for agricultural inputs. A more recent study (Warford et al. 1993) of the Bank's adjustment loans to 58 countries between 1988 and 1992 found that 24 of them were expected to reduce or eliminate subsidies for these inputs.

8. As the members of the FAO noted when they adopted the International Code of Conduct on the Distribution and Use of Pesticides in 1985, "increased food production is a high priority need in many parts of the world and...this need cannot be met without the use of indispensable agricultural inputs such as pesticides" (FAO 1990, 31). In the same year, the World Bank (1985, 1) explained to its staff that: "chemical pesticides are essential elements in a pest management program." These statements do not imply sole reliance on pesticides, but even advocates of IPM acknowledge the importance of pesticides as a strategic tool for managing pests (e.g., Natural Resources Institute 1992b).

9. Given the multinational nature of most agrichemical companies, this argument may oversimplify reality. Such companies have their own dynamic. To the extent they are subject to the laws and regulations of one country, they may avoid their application by operating in countries without such constraints.

10. As an illustration, the FAO (1993b) observes that most African countries "lack or are short of technical, physical and administrative facilities to be able to effectively monitor and enforce the provisions of the [International Code of Conduct on the Distribution and Use of Pesticides], including a legal pesticide registration [system], an operational registration and control scheme, educational materials to support the extension of safe and efficient use of pesticides, and laboratory facilities for pesticide analysis."

11. According to the Institute's staff, a major reason for the lack of success with IPM programs in many countries is due to a lack of "adequate resources and commitment by donors over a sufficiently long period to make a permanent impact. This situation has resulted in competition for available scarce resources, often leading to fragmented efforts and ineffective collaboration between the development agencies" (Natural Resources Institute (1992a, 58).

12. In addition, these colonial ties also provide much of the explanation for France's continuing commercial ties with sub-Saharan Africa. See *Economist* (1994a).

13. The non French-speaking countries did not enter the ambit until the 1980s, and Mozambique, Namibia, and Zaire have since been added to the list of ambit countries. Fourteen countries in sub-Saharan Africa comprised the original membership in le champ.

14. France also provides assistance to its overseas territories (territoires d'outre mer, or TOM), such as New Caledonia. The Ministry for Overseas Departments and Territories administers this assistance.

15. The CFD also owns a controlling equity stake in the Société de promotion et de participation pour la coopération économique (PROPARCO, Agency for Promotion and Participation in Economic Cooperation),

whose purpose is to promote the creation and development of enterprises in the private sector.

16. Although the CFD implements structural adjustment programs, the CFD, the MC, and the Ministry of Economic Affairs share responsibility for the management of these programs. In addition, since 1990, the MC, the CFD, the Ministries of Foreign and Economic Affairs share membership on the *Comité d'orientation et de programmation de l'aide* (Committee for Guidance and Programming of Assistance), whose purpose is to facilitate cooperation among the organizations and to ensure policy consistency in the ambit countries. The committee met nine times between April 1991 and the end of 1992, but only once in 1993, thus suggesting "that the departments concerned have not so far managed to decide how best to use this instrument for joint reflection and consultation" (OECD 1994b, 21).

17. On this point there appears to be some disagreement among sources. According to one source (Castaing, personal communication, 1994), France's nonproject assistance has been linked in principle to accords of the International Monetary Fund and based on conditionalities since 1980.

18. More so than other bilateral donors, France links much of its assistance to technical cooperation activities. In the early 1980s, as an illustration, France could claim that one-third of all technical-assistance personnel in developing countries were French (Hugon 1983). Most of the coopérants involved with French technical cooperation have been teachers, but this is gradually changing as France begins to reduce the number of coopérants and to shift their focus to administrative activities and the strengthening of institutions involved with structural adjustment programs. In the ambit countries, there were an estimated 14,000 coopérants in 1980 and 4,200 in 1990. Further reductions are scheduled. Approximately 7,000 other coopérants worked abroad under the auspices of the Ministry of Foreign Affairs in 1990.

19. As an example, a three-day training program on environmental issues was organized in Paris and abroad in 1991.

20. According to one informant (Bruge, personal communication, 1993), however, France did provide lindane for the control of locusts in Africa in 1987-1988. USAID discouraged the chemical's use (Office of Technology Assessment 1990), but France supposedly persisted because it wanted to use a product manufactured in France. This situation raises the issue of tied aid, which is beyond the scope of this report. Nonetheless, the issue does have implications for the use of pesticides. As the U.S. Office of Technology Assessment (1990, 87) observed in a report on the control of locusts: "tied aid requirements for the use of American-made commodities mean that U.S. pesticide manufacturers have a vested interest in maintaining a control strategy based almost exclusively on insecticide use. They can be expected to over-stress benefits, overlook difficulties of following safer practices in Africa, and minimize the hazards of insecticide use." Many bilateral donors have some requirements for tied aid, so this problem is not limited to the United States. As one reviewer noted in regard to tied aid, the OTA's conclusion about "vested interests" has misleading implications. No U.S. or other manufacturer has an independent, vested interest in the control of locusts; there is no commercial market for relevant products. Thus, donors' procedures on pesticide procurement are a more relevant consideration. The concerns about tied aid and vested interests are of greater concern in regard to those areas and commodities where there is commercial activity, such as with tea, cotton, coffee, and tobacco.

21. Borderon did indicate, however, that the CFD would not knowingly finance agricultural projects if they are based on the use of internationally prohibited pesticides such as endrin, a potent organochlorine pesticide in widespread use in the 1960s. Endrin's use in the United States is prohibited, and its registration has been canceled. Several informants indicated that the CFD's loans have been used to purchase pesticides that are poorly packaged, improperly labeled, and not shipped in conformity with the FAO's Code of Conduct.

22. The distinction between the GTZ's and KfW's responsibilities is not as clear as these sentences suggest. The KfW provides some technical assistance when it is needed as part of a capital assistance project, and the GTZ provides some capital assistance. In addition to GTZ and KfW as the major implementing agencies for Germany's foreign assistance programs, the BMZ also promotes agricultural development through other governmental and nongovernmental institutions such as the Deutscher Entwicklungsdienst (German Volunteer Services), Deutsche Stiftung für Internationale Entwicklung (German Foundation for International Development), and Bröt für die Welt (Bread for the World).

23. On October 1, 1994, the KfW merged with the Staatsbank, the former central bank of the German Democratic Republic. The KfW absorbed the bank's staff of approximately 400 and assumed some of its remaining functions.

24. Of the 43 sub-Saharan African countries in these two categories in 1992, 32 were eligible for grants from the KfW while the remainder were eligible only for low-interest loans. Countries in the latter category included Côte d'Ivoire, Ghana, Kenya, Senegal, and Zimbabwe. Loans to the latter are typically at an interest rate of 0.75 percent for 40 years, including a grace period of an additional 10 years.

25. The KfW (1993, 5) defines a project as a "set of measures that are clearly delimited with respect to function, location, economic scope and duration, and whose effects can in the main be assessed." Programs comprise several similar projects or "functionally interdependent projects for the promotion of individual sectors or regions (such as rural development programmes)...."

26. Some of the GTZ's overseas offices are administered in ways that some people may consider to be novel. The GTZ's office in Tanzania, for example, is operated on a

commercial basis and recovers it costs by levying fees for services on individual GTZ projects in the country.

27. In this regard the procedures of the GTZ and KfW vary. Once the federal government decides that a project is suitable for the latter's assistance, the BMZ authorizes the KfW to enter into direct contractual negotiations with the borrowing institution or government (KfW 1993).

28. For example, the BMZ submits all project proposals to other ministries that may have an interest in the activity, and the Foreign Office must approve every project. Approval from the Ministry of Finance is also required for activities above a certain monetary value.

29. The first application of these criteria in 1992 led to reduced allocations of German assistance to five of the top ten recipients.

30. When other sources of Germany's official development assistance are considered, the total number of recipients increases to as many as 140 countries. Other sources of German assistance include federal ministries other than the BMZ and Germany's state governments.

31. A domestic requirement for environmental impact assessments was not in place until 1990. That law does not apply outside of Germany or to its development assistance programs.

32. To the extent that another organization has conducted an environmental assessment, the KfW and GTZ may use that assessment in lieu of conducting their own. As an illustration, the KfW relied on the World Bank's assessment of the Second Agricultural Sector Adjustment Operation in Kenya. The KfW endorsed the Bank's assessment, and no further environmental appraisal was completed (Pischke, personal communication, 1994).

33. During the first year in which this categorization scheme was used, the BMZ approved 8 technical-assistance projects and 13 financial cooperation activities in environmental category 3 (BMZ 1989).

34. The KfW's handling of project documents is similar to that of the GTZ, but the former submits annual rather than semiannual progress reports to the BMZ.

35. Much of the discussion that follows is from KfW (1994a).

36. The WHO periodically publishes a list of pesticides and ranks them by degree of hazard (WHO 1994). The classification scheme is based primarily on a pesticide's toxicity to rats and thus only with extrapolated acute risks to human health. The scheme considers neither a pesticide's persistence nor its potential environmental impacts. Despite this shortcoming, the WHO's scheme provides a useful means to assess the desirability of providing certain pesticides to countries that may be ill-equipped to store, use, or dispose of them. Pesticides in classes II and III are deemed to be "moderately hazardous" and "slightly hazardous."

37. In compliance with its mandate, the KfW does not normally appraise commodity assistance prior to disbursal. As the KfW (1993, 7) notes, "Monitoring [of general commodity aid] is as a rule limited to checking whether the applications for a withdrawal of funds are in conformity with the purpose of the assistance as stipulated in the agreement." The discussion that follows thus indicates that the KfW treats the provisions of pesticides through commodity aid as an exception to the general rule just noted. It is important to observe as well that the KfW does not procure agricultural inputs for recipients or borrowers. Recipients make arrangements for procurement, and the KfW has no contractual relation with the suppliers, thus reducing the KfW's potential leverage. This situation reflects the KfW's emphasis on the initiation of activities and its preferences that recipients assume responsibility for implementation.

38. As one respondent noted, however, the problem with the GTZ's emphasis is that a large amount of different pest-management projects are being implemented, but there is no clear policy about how to treat the pesticide issue in general agricultural development projects.

39. As Yanigihara and Emig (1991, 58) observe: "The Diet plays virtually no role in the process of decision making on aid. It is empowered to pass the annual budget allocation for aid, although the legislature has never used this authority to examine aid plans and programs to evaluate aid outcomes."

40. Bloch (1991, 77) is equally direct in identifying this consequence of Japan's request-based approach. She believes that the approach has "given Japanese private consulting firms practically a free hand in drawing up project proposals, shepherding them through both the Japanese and recipient governments' approval processes and directing the lucrative contracts to related Japanese companies."

41. Inukai (1993, 261) supports such a view when he notes that Japan's "economic relationships with Sub-Saharan Africa are of minor importance to its own economic prosperity."

42 Togo may provide an interesting exception to this conclusion. The Pesticide Management Network (1994) reprinted a notice from that country's Ministry of Rural Development indicating that it had received a donation of 100 tons of fenitrothion powder from Japan. As the announcement stated, however, this amount "exceeds largely the needs of Togo. Therefore, the Minister seeks to identify a country or organisation interested to acquire this whole stock or part of it."

43. The United States has more pesticide products registered (about 20,000) than any other country in the OECD. For purposes of comparison, 4,613 and 948 products were registered in the United Kingdom and Germany, respectively, in 1992 (U.S. General Accounting Office 1993). Lack of registration in the United States does not neces-

sarily mean that a pesticide is inappropriate for use. As the U.S. Environmental Protection Agency has noted, "the fact that a pesticide is not registered in the United States may provide little indication of whether the pesticide poses a serious health or environmental threat when used in other countries....pesticide manufacturers may not seek to register a product in the United States simply because there is no need for it here" (*Federal Register* 1993, 9,064). The FAO (1990, 2-3) concurs: "the fact that a pesticide is not used or registered in a particular exporting country is not necessarily a valid reason for prohibiting the export of that pesticide."

44. This statement may merit some qualification. Information provided during an interview is the basis for the statement in the text. In contrast, one JICA document (1994b) indicates that all "agricultural inputs can be procured from any country other than the recipient country."

45. The same report observes that fertilizers donated to Pakistan are sold at subsidized prices.

46. Such a position is consistent with the International Code of Conduct on the Distribution and Use of Pesticides (FAO 1990, 3), which states that the: "climatic, ecological, agronomic, social, economic and environmental conditions [of developing countries] and therefore their pest problems are usually quite different from those prevailing in countries in which pesticides are manufactured and exported. The government of the exporting country, therefore, is in no position to judge the suitability, efficacy, safety or fate of the pesticide under the conditions in the country where it may ultimately be used. Such a judgment must, therefore, be made by the responsible authority in the importing country...in light of the scientific evaluation that has been made and a detailed knowledge of the conditions prevailing in the country of proposed use" (italics added).

47. For example, in an evaluation of 2KR assistance to Mozambique, the Ministry of Foreign Affairs (1993) emphasized the need to monitor the use of donated inputs but then pointed out that this is a "domestic problem" to which Mozambique's Ministry of Agriculture should respond.

48. As Koppel and Orr (1993, 11) explain, the Japanese emphasize "economic/commercial concerns while the United States has focused more on political/strategic rationales for aid-giving. The United States has also been more willing to link economic and sometimes political policy conditionality to its assistance in an effort to get recipients to adopt more free market economic and more democratic political principles. By comparison, the Japanese government has been reluctant to place greater explicit pressure on recipients to pursue specific policies....The exception to this rule has been in Africa, where Japan often has camouflaged conditionality admonishments by saying they were simply being consistent with regional IMF policy." The last sentence does not necessarily contradict the point to be made. Conditionality associated with IMF projects typically involves loans (as opposed to grants) and large-scale structural adjustment programs. See also USAID (1992), which indicates that political and commercial interests provide the rationale for much of Japan's foreign assistance.

49. As noted above, the use of fenitrothion is restricted in the United States.

50. Of course, the possibility exists that the author did not ask the appropriate respondent(s), but a questionnaire that included several items on IPM had been sent to JICA's headquarters several months in advance of the oral inquiry.

51. Other commentators disagree. As Bose (1991, 127) suggests: "British aid policy-making is a highly complex process to which there are no easy or satisfactory conclusions....British aid is, at best, an elusive subject for study. Almost all information is classified..., which limits the researcher's access to ODA personnel and documents. Secondly, former civil servants and retirees are prevented by the Thirty Year Rule from divulging any information to which they may have been a party when at Whitehall or overseas."

52. Crown agents do not serve only the interests of the ODA. In some countries JICA has also made arrangements with crown agents to administer assistance projects.

53. Despite this classification of the CDC's activities, it remains instructive to examine the CDC's role because of its large role in sub-Saharan Africa.

54. A further criticism, leveled in the mid 1980s, was that the ATP discriminated against Africa and its agriculture (see All Party Parliamentary Group on Overseas Development 1985, 45). There is evidence to support this view. Of 82 ATP-related sales between 1978 and 1985, none were related to agriculture in sub-Saharan Africa (Howell 1988).

55. As noted earlier, the author was given access to certain unpublished documents produced for the OECD on the condition that they not be cited. This quotation is from one of these documents.

56. In contrast to the high concessionality of assistance from the United Kingdom, it has one of the highest rates of tied aid among major bilateral donors. German (1993) estimates that nearly three-quarters of the ODA's bilateral aid was tied to the purchase of goods and services from the United Kingdom in 1991.

57. The United Kingdom's high level of contributions to the European Community has both an explanation and important potential consequences for bilateral assistance. As the OECD (1994a, 14) has reported: "The high proportion of British aid budget channeled through the EC arises from the fact that British aid as a proportion of GNP is lower than a number of other EC countries but its aid through the EC is generally based on its share of European GNP....This high proportion of aid transiting through the EC reduces the funds available to the United Kingdom's bilateral programme....the proportion of aid

through the EC will increase over the next decade putting a further squeeze on other multilateral aid and the bilateral channel." Indeed, a recent article (*Economist* 1994c) suggests that multilateral agencies distribute more than half of all of the United Kingdom's assistance.

58. Program aid in the United Kingdom involves support for import financing to assist countries with severe problems with balance of payments. Such support is intended to support the importation of commodities, including agrichemicals, that a country could not otherwise afford due to a lack of hard currency. Program aid is a component of the ODA's nonproject assistance, which also includes food and budgetary aid and debt and disaster relief. These forms of nonproject assistance do not normally involve any policy conditionality (Healey n.d.).

59. The ODA allocated £56.6 million of project aid to agricultural and livestock activities in 1986; by 1990, this amount had declined to £38 million despite an overall increase in the amount of project aid for renewable natural resources, the category that includes agriculture and livestock. See ODA (1991).

60. Highly sensitive projects can cause substantial adverse environmental effects that are likely to affect a project's viability. Such projects are not prohibited, but they do require a formal environmental assessment and involvement of appropriate environmental specialists in the design of a formal monitoring program. Sensitive projects include those that could cause significant adverse environmental impacts without affecting a project's viability. A limited environmental assessment is required, and a formal monitoring system dependent on self-reporting is probably required. Low-risk projects are unlikely to cause significant adverse effects. Only routine environmental assessment and reporting are required. See CDC (1993, 13).

61. The methodology for doing so is included in the CDC's *Investigations and Negotiations Guidelines*, which were not available for this report.

62. The ODA's *Manual of Environmental Appraisal* does not have an explicit scheme for ranking or categorizing unacceptable impacts, but the manual does identify the kinds of projects and policy proposals that are typically associated with significant impacts on the environment (e.g., policy initiatives likely to affect the environment, introduction or intensification of use of pesticides or fertilizers, major changes in land tenure, large infrastructure).

63. The statement that pesticides are provided rarely is a result of a personal communication with members of the ODA's environmental staff. In contrast to this statement, which the author has no reason to challenge, the *Manual of Environmental Appraisal* (ODA 1992, 13) notes that: "It is commonplace to supply such items as fertilizers, pesticides, animal vaccines" as part of program aid.

64. PIC refers to "the principle that international shipment of a pesticide that is banned or severely restricted in order to protect human health or the environment should not proceed without the agreement...or contrary to the decision of the designated national authority in the participating importing country" (FAO 1990, 9). Current PIC-listed pesticides include such products as aldrin, chlordane, dieldrin, DDT, and heptachlor.

65. Although many readers of this report are familiar with USAID's organizational structure and approach to development, it is desirable to summarize these topics briefly for the benefit of those who may have little experience with USAID.

66. At the end of 1994, the Foreign Assistance Act, as amended, exceeded 300 pages. In that year the Clinton Administration developed a proposed Peace, Prosperity, and Democracy Act, which was intended to simplify and replace the Foreign Assistance Act, but the Congress did not take any action on the proposal.

67. As an illustration, the largest single category of U.S. assistance is contained in the Economic Support Fund, which is used to assist in the achievement of U.S. foreign policy objectives. The Congress typically determines the allocation of approximately 90 percent of these funds to specific countries; the U.S. Department of State allocates the remainder (U.S. Government Accounting Office 1993b). The Department of State also determines the countries in which USAID can operate, can limit the number of agency staff assigned to those countries, and must approve the closure of overseas offices. For a critical assessment of USAID's efforts to emphasize objectives rather than recipients, see *Economist* (1994b).

68. Created in 1987, the DFA's purpose is to "help the poor majority of men and women in sub-Saharan Africa to participate in a process of long-term development through economic growth that is equitable, participatory, environmentally sustainable, and self-reliant." Critical sectoral priorities include health, education, voluntary family planning services, income-generating opportunities, and agricultural production and natural resources. The Congress appropriated $800 million for the DFA for fiscal year 1994 (from October 1, 1993 to September 30, 1994), with the instruction that 10 percent of the amount appropriately annually should be devoted to activities related to maintaining and renewing Africa's renewable natural resource base.

69. By way of comparison, in an evaluation of JICA's projects in Indonesia in 1989 (Ministry of Foreign Affairs 1991), the evaluator noted that USAID/Indonesia had 198 employees with responsibility for 27 bilateral projects whereas JICA had 28 employees in Jakarta with responsibility for 20 projects.

70. Despite these changes and despite major changes in the form of USAID's assistance (i.e., increased reliance on policy-based reform at the expense of project-based assistance), the agency's policies are geared primarily to the physical donation of pesticides rather than to activities that may happen to use pesticides.

71. These circular numbers are respectively, 1221.2 (dated August 18, 1970) and 1214.1 (dated September 20, 1971).

Both documents are reprinted in the *Federal Register* (1972, 22686-87).

72. The circular number is 1612.10.3 (dated February 12, 1971).

73. Through the Commodity Import Program, USAID provides loans or grants to developing countries. In turn, these countries are allowed to use these funds to purchase U.S. goods, such as agricultural equipment or foodstuffs (Committee on Health and the Environment 1988).

74. These regulations are codified in 22 *Code of Federal Regulations* 216 (i.e., part 216 of volume 22 of the Code). Despite USAID's intentions, there is ongoing debate about whether the agency's environmental procedures meet the letter and spirit of NEPA. For example, Selph (1993) criticizes the agency for not requiring public involvement in the preparation and review of initial environmental examinations (IEEs). She further observes that the agency's procedures do not provide sufficient guidance for those preparing IEEs and environmental assessments. For these and other reasons, she concludes that USAID's environmental procedures "do not meet NEPA's requirements or adequately address NEPA's concerns" (Selph 1993, 141). Similarly, Ernsdorff (1992) argues that USAID applies an overly narrow interpretation of NEPA's requirements and frequently substitutes discretionary terminology for mandatory terminology. As a consequence, he asserts, "Without mandatory, action-forcing procedures, agency discretion can, and does, relegate environmental considerations to a low priority" (Ernsdorff 1992, 144).

75. These regulations were modified in 1978 and 1980, but discussion of those changes is found below.

76. These differences also underscored the need for rigorous assessment of potential environmental impacts should USAID finance the acquisition of pesticides.

77. USAID is currently deemed to be a minor donor in a multidonor project when it "does not control the planning or design of the multidonor project and (i) either AID's total contribution to the project is both less than $1,000,000 and less than 25 percent of the estimated project cost, or (ii) AID's total contribution is more than $1,000,000 but less than 25 percent of the estimated project cost and the environmental procedures of the donor in control of the planning of design of the project are followed, but only if the AID Environmental Coordinator determines that such procedures are adequate." The definition of a minor donor was first added to Regulation 216 in 1978 (*Federal Register* 1978) and then modified in 1980 (*Federal Register* 1980).

78. In its programmatic EIS, USAID declared that when it was involved in a project as a minor donor, "it would attempt to influence others to adopt its objectives and to incorporate its overall policy on pest management to the fullest extent possible" (USAID 1977, 335). Such a statement is neither included in the "Policy on Pesticide Support" (USAID 1978), which is discussed below, nor the revised procedures for Regulation 216 (*Federal Register* 1978; 1980). Despite the lack of obligation to apply the environmental requirements of Regulation 216 when USAID is a minor donor, the agency has tried to influence the decision-making processes of the other donors (see, for example, Committee for Health and the Environment 1988).

79. The policy statement is also included in Committee on Health and Environment (vol. 2, 1988).

80. Between 1985 and mid-1994, no requests were approved (Hester, personal communication, 1994).

81. The committee's report was completed in response to section 539(i) of the Foreign Assistance Appropriation Act of 1987 (Public Law 99-591), which instructed the agency to "examine opportunities for assisting countries in the proper use of agricultural and industrial chemicals and processes and alternatives such as integrated pest management.

82. It is important to emphasize again the distinction between USAID's direct procurement of pesticides, which Regulation 216 strongly discourages, and the potential (lack of) opportunities to influence decisions about pesticides and other inputs through sectoral adjustment.

83. Not all such USAID projects have met with as much success as their advocates would prefer. For example, despite favorable appraisals from entomologists (e.g, Matteson 1990; Matteson et al., 1993), the Committee on Health and the Environment (1988, vol. 1, 31; vol 2, 6-7) deemed USAID's regional IPM project in the Sahel in the early 1980s to be unsuccessful. There is also some concern about the relative effectiveness of other agency-sponsored IPM projects as well. In an evaluation of scores of environmentally related projects, USAID's Center for Development Information and Evaluation concluded that "many AID. supported IPM programs have been 'captured' by their pesticide components and the focus has been environmentally sound pesticide use rather than identifying and introducing IPM alternatives to pesticide use. It appears that AID. has yet to bring a balanced IPM strategy into its environmental programs in ways that assure pesticide use will not be overly emphasized" (USAID 1992c). Given the generally high rate of return on investments in agricultural technologies in sub-Saharan Africa (Oehmke and Crawford 1993), this relative lack of attention to IPM may represent a significant missed opportunity.

84. No such permanent IPM task force exists within USAID in late 1994, although there are informal groups that discuss IPM-related issues of common interest among the agency's various regional and central bureaus.

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Appendix A

People Contacted

France

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Appendix B

GTZ's Pesticide Information Form

NOTE: This form is for purposes of illustration only; it is not intended for anyone's use outside of GTZ.

Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH: Annexe to enquiry regarding pesticides, post-harvest protection products and pest control agents

P.No.:	Item No.:
Project:	BANF:
Country:	

Product Requirements

1. Product requested (active ingredient)	..... Alternative products (active ingredients) which also meet the specifications may be proposed.
2. Formulation (%, g/l, g/kg, EC, WP,DP,GR,UL,etc)	....
3. Quantity to be ordered:	.....
4. Field of application:	Pests..... ..... Crop..... ..... Stage of plant development..... ..... Area to be treated in ha (where known)..... .....
5. Application quantity: (l/ha, kg/ha)	....
6. Application technique:	.....
7. Type of packaging: (container/package size)	....
8. Labelling:	The labelling should be in..... and must be in line with the FAO Code of Conduct, Article 10.

The following information must be given in detail on the label:

1. Trade name, active ingredient and formulation
2. Directions for application
3. Warnings and safety measures

4. First-aid measures and directions for the doctor
5. WHO hazard classification or similar information (color coded)
6. Date of manufacture, batch no. and relevant information on storage product
7. If the product cannot be stored for more than 2 years, details as to how long it can be stored under normal conditions
8. Directions on how to dispose of empty containers
9. Name and address of manufacturer

Product-Specific Requirements:
- with the offer

1. Registration:	The tenderer shall submit evidence that the product proposed has already been registered in countries with stringent registration criteria (e.g. EC, USA, Japan) and in the recipient country.
2. FAO Code of Conduct:	The tenderer shall declare that the product offered complies with the currently valid version of the FAO International Code of Conduct on the Distribution and Use of Pesticides. The tenderer shall undertake to meet the pertinent obligations under the above Code of Conduct and to confirm the product liability of the manufacturer. The relevant declaration shall be attached to the offer.
3. Supervision:	A representative in the country or region shall be named.
4. Packaging:	Specifications of the packaging envisaged.

- on receipt of order but prior to delivery:

1. Analysis certificate for the product:	A certificate listing the active ingredient content, the solvents and other additives insofar as these are relevant to toxicity of the product, naming the original manufacturer of the active ingredient(s), also instructions of the analysis method.
2. Specimens to be supplied on request:	-one label per product -a specimen of packaging -a specimen (50 ml or g) of each product.

The analysis certificate and specimens should be submitted to:

GTZ-Pesticide
Formulation Control Laboratory
Hauptstrasse 51
D-7860 SCHOPFHEIM
Germany

Appendix C

The ODA's Pesticide Checklist

- What is the identity of the pest? Different species of pest, even though they may look similar, may differ greatly in their susceptibility to pesticides. Is there a real pest problem, i.e., has the economic cost of the losses likely to be incurred been considered?

- Is pesticide use appropriate, or are there alternative, safer, methods of control?

- Which pesticides are effective against the pest? Are they registered or approved for use in the recipient country?

- What hazard will the pesticide present to the user? What is the user's level of competence to handle such products? Is training required?

- How will the pesticide be applied? What equipment will be used? Is the user trained to handle such equipment?

- What are the environmental risks? For example, is there likelihood of polluting soils, water supplies (surface and groundwater), or of concentration of pesticides in food chains?

- How much pesticide is required? What are the most appropriate pesticide formulations, pack types and sizes? Does the label contain all the necessary information for safe use? Is it in the appropriate language?

- Is special protective clothing required for handling the pesticide? Does it need to be supplied, or is it available locally?

- Does the pesticide conform to specific standards for quality and efficacy? Is there a need for quality testing?

Source: ODA 1992a, 65.

Appendix D

USAID's Environmental Procedures Relevant to Pesticides

Excerts from USAID's Environmental Procedures, 22 CFR Part 216.

§ 216.1 Introduction

(a) Purpose. In accordance with sections 118(b) and 621 of the Foreign Assistance Act of 1961, amended, (the FAA) the following general procedures shall be used by A.I.D. to ensure that environmental factors and values are integrated into the A.I.D. decision making process. These procedures also assign responsibility within the Agency for assessing the environmental effects of A.I.D.'s actions. These procedures are consistent with Executive Order 12114, issued January 4, 1979, entitled Environmental Effects Abroad of Major Federal Actions, and the purposes of the National Environmental Policy Act of 1970, as amended (42 U.S.C. 4371 et seq.) (NEPA). They are intended to implement the requirements of NEPA as they effect the A.I.D. program.

(b) Environmental Policy. In the conduct of its mandate to help upgrade the quality of life of the poor in developing countries, A.I.D. conducts a broad range of activities. These activities address such basis problems as hunger, malnutrition, overpopulation, disease, disaster, deterioration of the environment and the natural resources base, illiteracy as well as the lack of adequate housing and transportation. Pursuant to the F.A.A., A.I.D. provides development assistance in the form of technical advisory services, research, training, construction and commodity support. In addition, A.I.D. conducts programs under the Agricultural Trade Development and Assistance Act of 1954 (Pub. L.480) that are designed to combat hunger, malnutrition and to facilitate economic development assistance programs are carried out under the foreign policy guidance of the Secretary of State and in cooperation with the governments of sovereign states. Within this framework, it is A.I.D. policy to:

(1) Ensure that the environmental consequences of A.I.D.-financed activities are identified and considered by A.I.D. and the host country prior to a final decision to proceed and that appropriate environmental safeguards are adopted;

(2) Assist developing countries to strengthen their capabilities to appreciate and effectively evaluate the potential environmental effects of proposed development strategies and projects, and to select, implement and manage effective environmental programs:

(3) Identify impacts resulting from A.I.D.'s actions upon the environment, including those aspects of the biosphere which are the common and cultural heritage of all mankind; and

(4) Define environmental limiting factors that constrain development and identify and carry out activities that assist in restoring the renewable resource base on which sustained development depends.

§ 216.3 Procedures

[Sections omitted]

(b) Pesticide Procedures—(1) **Project Assistance.** Except as provided in § 216.3(b)(2), all proposed projects involving assistance for the procurement or use, or both, of pesticides shall be subject to the procedures prescribed in § 216.3(b)(1) (i) through (v) below. These procedures shall also apply, to the extent permitted by agreements entered into by A.I.D. before the effective date of these pesticide procedures, to such projects that have been authorized but for which pesticides have not been procured as of the effective date of these pesticide procedures.

(i) When a project includes assistance for procurement or use, or both of pesticides registered for the same or similar uses by USEPA without restriction, the Initial Environmental Examination for the project shall include a separate section evaluating the economic, social and environmental risks and benefits of the planned pesticide use to determine whether the use may result in significant environmental impact. Factors to be considered in such an evaluation shall include, but not be limited to the following:

(a) The USEPA registration status of the requested pesticide;

(b) The basis for selection of the requested pesticide;

(c) The extent to which the proposed pesticide use is part of an integrated pest management program;

(d) The proposed method or methods of application, including availability of appropriate application and safety equipment;

(e) Any acute and long-term toxicological hazards, either human or environmental, associated with the proposed use and measures available to minimize such hazards;

(f) The effectiveness of the requested pesticide for the proposed use;

(g) Compatibility of the proposed pesticide with target and non-target ecosystems;

(h) The conditions under which the pesticide is to be used, including climate, flora, fauna, geography, hydrology, and soils;

(i) The availability and effectiveness of other pesticides or non-chemical control methods;

(j) The requesting country's ability to regulate or control the distribution, storage, use and disposal of the requested pesticide;

(k) The provisions made for training of users and applicators; and,

(l) The provisions made for monitoring the use and effectiveness of the pesticide.

In those cases where the evaluation of the proposed pesticide use in the Initial Environmental Examination indicates that the use will significantly affect the human environment, the Threshold Decision will include a recommendation for the preparation of an Environmental Assessment or Environmental Impact Statement, as appropriate. In the event a decision is made to approve the planned pesticide use, the Project Paper shall include to the extent practicable, provisions designed to mitigate potential adverse effects of the pesticide. When pesticide evaluation section of the Initial Environmental Examination does not indicate a potentially unreasonable risk arising from the pesticide use, an Environmental Assessment or Environmental Impact Statement shall nevertheless be prepared if the environmental effects of the project otherwise require further assessment.

(ii) When a project includes assistance for the procurement or use, or both, of any pesticide registered for the same or similar uses in the United States but the proposed use is restricted by the USEPA on the basis of user hazard, the procedures set forth in §216.3(b)(1)(i) above will be followed. In addition, the Initial Environmental Examination will include an evaluation of the user hazards associated with the proposed USEPA restricted uses to ensure that the implementation plan which is contained in the Project Paper incorporates provisions for making the recipient government aware of these risks and providing, if necessary, such technical assistance as may be required to mitigate these risks. If the proposed pesticide use is also restricted on a basis other than user hazard, the procedures in § 216.3(b)(1)(iii) shall be followed in lieu of the procedures in this section.

(iii) If the project includes assistance for the procurement or use, or both of:

(a) Any pesticide other than one registered for the same or similar uses by USEPA without restriction or for restricted use on the basis of user hazard: or

(b) Any pesticide for which a notice of rebuttable presumption against registration, notice of intent to cancel, or notice of intent to suspend has been issued by USEPA.

The Threshold Decision will provide for the preparation of an Environmental Assessment or Environmental Impact Statement, as appropriate (§ 216.6(a). The EA or EIS shall include, but not be limited to, an analysis of the factors identified in §216.3(b)(1)(i) above.

(iv) Notwithstanding the provisions of § 216.3(b)(1) through (iii) above, if the project includes assistance for the procurement or use, or both, of a pesticide against which USEPA has initiated a regulatory action for cause, or for which it has issued a notice of rebuttable presumption against registration, the nature of the action or notice, including the relevant technical and scientific factors will be discussed with the requesting government and considered in the IEE and, if prepared, in the EA or EIS. If USEPA initiates any of the regulatory action above against a pesticide subsequent to its evaluation in an IEE, EA or EIS, the nature of the action will be discussed with the recipient government and considered in an amended IEE or amended EA or EIS, as appropriate.

(v) If the project includes assistance for the procurement or use, or both of pesticides but the specific pesticides to be procured or used cannot be identified at the time the IEE is prepared, the procedures outlined in § 216.3(b) (i) through (iv) will be followed when the specific pesticides are identified and before procurement or use is authorized. Where identification of the pesticides to be procured or used does not occur until after Project Paper approval neither the procurement nor the use of the pesticides shall be undertaken unless approved, in writing, by the Assistant Administrator (or in the case of projects authorized at the Mission level, the Mission Director) who approved the Project Paper.

(2) Exceptions to Pesticide Procedures. The procedures set forth in §216.3(b)(1) above shall not apply to the following projects including assistance for the procurement or use, or both of pesticides.

(i) Projects under emergency conditions. Emergency conditions shall be deemed to exist when it is determined by the Administrator, A.I.D., in writing that:

(a) A pest outbreak has occurred or is imminent; and

(b) Significant health problems (either human or animal) or significant economic problems will occur without the prompt use of the proposed pesticide; and

(c) Insufficient time is available before the pesticide must be used to evaluate the proposed use in accordance with the provisions of this regulation.

(ii) Projects where A.I.D. is a minor donor, as defined in §216.1(c)(12) above, to a multi-donor project.

(iii) Projects including assistance for procurement or use, or both, of pesticides for research or limited field evaluation purposes by or under the supervision of project personnel. In such instances, however, A.I.D. will ensure that the manufacturers of the pesticides provide toxicological and environmental data necessary to safeguard the health or research personnel and the quality of the local environment in which the pesticides will be used. Furthermore, treated crops will not be used for human or animal consumption unless appropriate tolerances have been established by USEPA or recommended by FAO/WHO, and the rates and frequency of application, together with the prescribed preharvest intervals, do not result in residues exceeding such tolerances. This prohibition does not apply to the feeding of such crops to animals for research purposes.

(3) Non-Project Assistance. In a very few limited number of circumstances A.I.D. may provide non-project assistance for the procurement and use of pesticides. Assistance in such cases shall be provided if the A.I.D. Administrator determines in writing that (i) emergency conditions, as defined in §216.3(b)(2)(i) above exists; or (ii) that compelling circumstances exist such that failure to provide the proposed assistance would seriously impede the attainment of U.S. foreign policy objectives or the objectives of the foreign assistance program. In the latter case, a decision to provide the assistance will be based to the maximum extent practicable, upon a consideration of the factors set forth in § 216.3(b)(1)(i) and, to the extent available, the history of efficacy and safety covering the past use of the pesticide in the recipient country.

[Sections omitted]

Source: 22 *Code of Federal Regulations* 216

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