Institutional Sustainability in Agriculture and Rural Development
For Dericksen and Mary Brinkerhoff, and Beth Goldsmith
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PART I

THE QUEST FOR SUSTAINABILITY
Introduction

Derick W. Brinkerhoff and Arthur A. Goldsmith

Sustainability is encountered with increasing frequency in a variety of arenas. As the global community of both developed and developing nations faces the challenges of finite natural resources, burgeoning public budget deficits, and growing interdependence and complexity, the need to do more with less has become the sine qua non of both government and private sector economic activity. Sustainability as an issue has both emerged from, and helped to shape, each of these challenges. For example, concern over the degradation and exhaustion of the environment has led to the explicit linking of economy and ecology, as necessary to sustaining growth while conserving the globe's natural endowments for future generations. Tax-payer's "revolts" in the United States, combined with continued demand for public services, have forced government to reexamine the scope of its activities while seeking ever greater efficiencies. And in Eastern Europe, parallel but even deeper concerns have been expressed in city streets and squares, contributing to the dismantling of Communist dictatorships and their state-managed economies.

In the foreign assistance realm, the objective of making development investments more productive has taken on new urgency as developing country indebtedness reaches new heights, bilateral assistance declines, multilateral agencies try to divide their resources among ever more competing needs, and private capital and trade flows take on increased importance. Much of the task of developing in a sustainable fashion involves
technical knowledge and skills, in the sense of specialized information and tools derived from the biological and physical sciences and applied to development and production problems. In the agricultural sector, such things as biologically-based pest control, water-saving irrigation systems, crop diversification, or soils salinity management comes to mind. These often-termed "hard" technologies are indisputably important for growth, development, and sustainability in the sector. However, there is also a family of "soft" technologies, those deriving from the human and social sciences, that play key roles. These tend to be overshadowed by their more visible brethren in the "hard" category.

The topic of this book is one of these "softer," less directly visible technologies, those relating to organizations and management. A key component of sustainable development is the institutional framework within which activities are conceived, planned, funded, implemented, and managed. While the technical quality and appropriateness of development activities are critical to success, sustainable institutions are equally so. To be able to grow and develop all economies need an infrastructure of institutions, both public and private, that operate efficiently and produce goods and services effectively. Institutions with these characteristics are particularly lacking in the Third World.

This book focuses on institutional sustainability and its role in agriculture and rural development. It concentrates on collaborations between international donor organizations and developing countries to design and implement projects aimed at introducing performance and capacity improvements, which in turn lead to sustainable institutions contributing to agricultural and rural development. Despite the drop in proportion of gross domestic product earned by agriculture relative to industry and services, many developing countries remain heavily dependent on agriculture. Especially for the bottom tier of developing nations, the vast majority of their populations pursue their livelihoods in rural areas, and their well-being depends on farming and allied occupations. Over the long run, maintaining and enhancing agricultural production demands a continuous process of acquisition, adaptation, and application of new technologies.

Technological change in agriculture has increased almost exponentially in complexity and speed, making the world marketplace for agricultural commodities increasingly volatile. In some cases new technologies have placed previously unique or distinct commodities in direct competition with either natural or synthetic substitutes. For example, the use of biotechnology to produce natural vanilla flavor in U.S. laboratories threatens a $50 million export for Madagascar, where 70,000 small farmers produced three quarters of the world's vanilla beans. In other cases, the failure to adopt a new knowledge has placed large populations at risk of malnutrition and even starvation. This is most vividly
true in sub-Saharan Africa, where institutions have not been able to support a “green revolution” of increased food production based on new varieties of food plants and improved agricultural techniques. Dynamic, capable institutions that deal with this increased complexity and rate of change on a sustained basis are central to successful agricultural development.

OVERVIEW

The book contains three sections. Part One, “The Quest for Sustainability,” examines the sustainability dimensions of agricultural and rural development. This first chapter introduces and outlines the book. Chapter 2 examines the range of meanings of sustainability, and reviews the nature of the relationship between institutional sustainability and continued benefit flows from agricultural and rural development activities. Chapter 3 develops a unified conceptual model of institutional sustainability that draws upon constructs from three theoretical schools of thought: systems theory, contingency theory, and political economy (SCOPE). Chapter 4 elaborates on the action-research methodology for applying the model in the field. Variants of this methodology served in the preparation of most of the case studies.

Part Two, “Promoting Institutional Sustainability: Case Experiences,” is made up of nine chapters; each uses the model to analyze a particular case or cases where an international donor-funded intervention sought to develop a sustainable institution. The cases range geographically across the world. Chapter 5 presents a regional development project in Thailand that sought to increase benefits for the poorest region of the country. Sustainable sources of credit for rural development in Indonesia is the topic of the next chapter. The critical period of project start-up is analyzed in Chapter 7, which looks at two projects, one in Guatemala and the other in Ghana. The Cameroon case, presented in Chapter 8, concerns a key input to agricultural production: fertilizer. The analysis focuses on what kind of policy and institutional changes can improve efficiency and set the Cameroonian fertilizer industry on a sustainable path. Chapter 9 examines a 20-year institution-building effort in support of the Moroccan Institute for Agriculture and Veterinary Medicine, which has moved the institute to world-class status. Chapter 10 explores the impact of a hostile and turbulent environment on introducing management change in a public sector agency in Haiti.

Chapter 11 analyzes the transfer of the U.S. land grant university model to India in an effort to improve that country’s agricultural research and higher education. The next two chapters deal with closely related activities. Chapter 12 investigates the organizational strengthening experience of a regional agricultural research institution in the
Eastern Caribbean. Chapter 13 looks at the World Bank's attempt to introduce the training and visit system to the Philippines' agricultural extension service.

Part Three, "The Lessons of Experience," draws on the case experiences to highlight strategies for promoting institutional sustainability. Chapter 14 discusses the sustainability lessons from a comparative analysis of several of the cases that are the topics of chapters in Part Two, plus others, and comments on the SCOPE framework to elucidate which elements of the model may require further work. Chapter 15 takes a broader perspective, incorporating the points made in all of the case chapters, and compiles a set of lessons learned. This final chapter makes suggestions for maximizing investment in institutional development, in support of increased agricultural growth and sustained progress in the rural regions of the Third World.

NOTE

1. The core of the book is based on the results of a multi-year applied research project funded by the U.S. Agency for International Development's (USAID) Bureau for Asia and the Near East. Preparation of the book was also partially supported by the agency's Science and Technology Bureau's Office of Rural and Institutional Development.
Sustainability and Rural and Agricultural Development

Arthur A. Goldsmith and Derick W. Brinkerhoff

Agricultural development has three distinct but related dimensions: the physical-technical, the economic-financial, and the institutional-human. The physical-technical dimension addresses land utilization, agricultural technologies, research and extension, agricultural inputs, farm-to-market access, productivity and production maximization, and so on. Agricultural development from the economic-financial perspective is concerned with costs, factors of production, terms of trade, pricing policies, subsidies, incentives, credit, return on investment, market mechanisms, and the like. The institutional-human dimension looks at knowledge and skills, organization and management, training, implementation capacity, social relations, politics, communication, motivation, participation, local government, public-private sector linkages, culture and values, historical experience, and so on.

Agricultural development, as with much of the development field, has tended to be the province of the technical and economic specialists. Their language and concerns have dominated the analysis of rural and agricultural sector issues, the specification of agricultural development objectives, and the design of programs and projects to achieve those objectives. The institutional-human dimension has frequently been either completely ignored or treated as a source of problems or constraints to achieving technical and economic targets, a residual category
for anything not defined as technical or economic. For example, a World Bank staff member notes that, “between 1976 and 1980 the Bank invested U.S. $920 million in agricultural projects without funds in any one of them being allocated to the staff training needed for the new activities on which those projects depended” (Woods, 1987:81). Recent work by Ruttan represents one effort to build theoretical integration of the three dimensions (Hayami & Ruttan, 1985; Ruttan, 1987). On the applied front, the USAID-supported farming systems approach to agricultural development is one example of an explicit attempt to integrate the three dimensions operationally (see Farming Systems Support Project, 1984, 1985, 1986).

Recognition of the importance of institutional and human factors in socio-economic development in general has increased substantially over the past 15 years or so, and is now a high priority area of attention by donor agencies and developing country governments alike (e.g., World Bank, 1983; Brinkerhoff, 1986; Israel, 1987; Lewis et al., 1988). Being a social technology, institutional development does suffer in the eyes of crop scientists, agricultural economists, and macroeconomic analysts from a lack of specificity, predictability, and hard-and-fast rules. Despite its “softness,” institutional development is a frequently espoused need of developing country officials and an aim often expressed by donor agencies. U.S. foreign assistance policy, for example, aims officially “to build and maintain the social and economic institutions necessary to achieving self-sustaining growth” (U.S. Congress, 1986).

This goal of institutional development is nowhere more important than in the rural and agricultural sectors, which continue to be the source of most employment in developing countries. Except for emergency relief, where the delivery of food for consumption is unavoidable, donor policies stress that assistance for the countryside should be an investment, that it generate a flow of benefits that endures after the external funds run out. The cumulative lessons of experience show that to have lasting impact, donor efforts to improve rural areas in the developing countries, and agriculture in particular, need to work with durable indigenous institutions both at the central and local levels (see, for example, Esman & Uphoff, 1984). It is not surprising that, in the 1990s, institutional sustainability is emerging as one of the major problem areas for sectoral management, as well as for public administration of core government functions in developing nations (USAID, 1988).

This chapter introduces the topic of institutional sustainability, focusing in particular on the agricultural and rural sectors, though its observations apply equally to other parts of the economy. To set the stage for the rest of the book, we start by briefly exploring the meanings of the key terms “sustainability” and “institution.” Then we review the latest
quantitative studies of sustainability, putting them in a comparative perspective.

SOME MATTERS OF DEFINITION

Sustainability

The broad topic of development "sustainability" is obviously not a new issue. The folklore of foreign aid is replete with tales of equipment that never worked in the field and was left to rust, of well-intended recommendations that local people disregarded, of organizations that succumbed to apathy—if they ever functioned in the first place. Critics of development assistance have always complained about this sort of waste (see, for example, Paddock & Paddock, 1973). It has often been easier to be clear about what failed and was not sustained than to search out what worked, what lasted, and why. In the mid- to late 1980s, however, sustainability has surfaced as a distinct and pressing concern of policy-makers in donor agencies and in the developing world.

As the last decade of the twentieth century gets underway, the expansion of cropped area and the adoption of modern farming techniques are putting new, perhaps irreversible, stress on the natural environment in developing countries, while soft international markets for agricultural commodities are forcing reappraisal of the possibilities for the Third World to increase its farm exports. Conventional development strategies seem more and more to have run their course, yet fresh approaches have been difficult to find. "Aid weariness" among the donor countries and high levels of indebtedness among the recipients have constrained the search for creative solutions. Finding ways to use both external and indigenous development resources more efficiently to achieve broader and more lasting impact has become, accordingly, more difficult and more imperative.

Each of the academic disciplines cuts into sustainability problems from a different angle. Three points of view stand out, each reflective of the three dimensions of agricultural development previously noted. Agricultural and natural scientists tend to frame the problem of sustainability in terms of the long-term impact of current farming practices on the global resource base. The chemicals and intensive cultivation associated with green revolution technology can degrade the environment and waste energy resources; scientific breeding of seed may reduce the native genetic diversity of crops, making food supplies more vulnerable to plant disease and pests. Because of such problems, agriculturalists and naturalists are increasingly concerned with identifying and promoting methods of cultivation that can protect and enhance nature's assets, while
continuing to produce enough food to satisfy burgeoning populations (Douglass, 1983; Redclift, 1987).

Thus the blue-ribbon Bruntland Commission has defined sustainable development as "development that meets the needs of future generations without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987:43). Countries such as Nepal and Haiti are living (or dying) examples of unsustainable development, and represent cautionary stories for those who would ignore the ecological costs of detrimental policies and practices. A downward spiral of events can result, with deforestation and erosion leading to food insecurity, extremes of poverty, class warfare, and ultimately to societal breakdown. Sub-Saharan African nations also appear to be in danger of proceeding down this road.

Economists, by contrast, are somewhat less preoccupied with the ecological dimensions of sustainability per se, since the mining of natural resources can be justified from an economic point of view (Tisdell, 1988). Their concern is not conservation by itself, but the appropriate trade-offs between economic growth and environmental preservation (World Bank, 1987). Accordingly, economists tend to be troubled by the man-made market distortions that curtail the growth of production and employment in the Third World. The most widespread examples of these distortions are the ill-considered or politically convenient price regimens that penalize the rural sector in many developing countries. There are extended economic costs to such policies. As the World Bank (1986:69) notes: "Discrimination against agriculture on a sustained basis not only reallocates resources within agriculture but also draws them out of it. As labor and capital move out and technical progress slows, the long-term losses can be large."

Management experts tend to make the development project or the organization their unit of analysis, and to worry about sustainability in terms of how to meet recurrent costs (Schroeder, 1987) or permanently improve capacity for implementation (Kearns, 1988; Honadle & Klauss, 1979). Development project management has emphasized achieving planned targets within a specified time frame and budget, thus responding more to donor agency needs for accountability than to recipient country capacity-building requirements. Donor-supported projects, with their autonomous implementation units, frequently experience a collapsing "balloon effect" when external funds and advisers are withdrawn (Morss et al., 1976:9). Because they are often organizationally "quarantined" and protected, with special budget and staff, such projects may leave little lasting imprint on regular government agencies, and in many cases may actually weaken them by drawing off the best national talent (Bremer, 1984; Honadle & VanSant, 1985).
The management perspective on sustainability, however, has evolved away from a narrow project focus, expanding to concentrate more on programs integrated into developing country agencies (White, 1987) and on the question of how to maintain an ongoing flow of goods and services to intended beneficiaries (VanSant, 1987; Gow, 1988). From the administrative point of view, sustainability means building organizational capacity to perform over an extended time period (longer than the life-of-project horizon) and assuring the continuation of useful and valued outcomes for client groups.

Specialists concerned with nonagricultural sectors cut into sustainability issues in their own way. Health experts, for example, are usually more concerned with the clientele than the implementing agency; they see the problem in terms of promoting affordable preventative health measures, as opposed to curative care alone, measures that enable poor people to enhance their physical well-being over the long run (Stinson, 1987). But the fundamental problems of sustainability in health and other fields are closely parallel to those facing farmers and rural administrators.

The thread that connects the agro-environmental, economic, and management perspectives on sustainability is effective social institutions, which must be in place to deal with all the current challenges to development. Overcoming the environmental damage of modern farming, for instance, is likely to require (among other things) that scientific organizations attack novel research problems, that private enterprise produce greater quantities of more sophisticated farm inputs, that farm advisory services disperse new knowledge, that local authorities mobilize farmers to change collective and individual behavior, and that farmers' organizations collect and market unfamiliar crops. Even something as seemingly straightforward as price reform requires considerable institutional capacity to analyze and monitor the impact of new prices, let alone to manage any political backlash. The institutional dimension, for example, has emerged as critical to the success of the structural adjustment programs and sector adjustment loans provided by the International Monetary Fund and the World Bank (Brinkerhoff & Hopkins, 1989; Lindenberg, 1989).

In virtually all problems of "development sustainability" the institutional dimension plays a key role. Unfortunately, many Third World countries lack the depth of institutions to carry through the complex and exacting duties likely to be needed to tackle the development tasks of the 1990s (Brinkerhoff, 1986; Cernea, 1987; Israel, 1987).

Institutions

What are institutions? The concept is subtle and thus subject to confusion. According to Huntington's definition (1968:12), they are stable,
12 The Quest

valued, recurring patterns of behavior. Institutions thus include rules or procedures that shape how people act, and roles or organizations that have attained special status or legitimacy. Their importance is now being rediscovered by the social sciences (March & Olsen, 1984; Moe, 1984), including the development subfield (Nabli & Nugent, 1989). An example of a rule-oriented institution is a system of land tenure; whereas a role-oriented institution could be the legal authority established to adjudicate disputes arising out of that land-tenure system. Both rules and roles can be institutionalized, the former as codes of law or custom, the latter as concrete organizations.

It is useful to keep in mind the distinction between these two types of institutions. Development assistance for agriculture and rural development is sometimes aimed at altering a village society's fundamental rules, for instance, by promoting tenure reform and land redistribution. When practitioners seek to build better institutions, however, the role-oriented, organizational definition is usually what they have in mind. The USAID-sponsored institution-building literature of the 1960s, for instance, converged around organizations (Eaton, 1972; Blase, 1986). USAID (1983:2) makes this a matter of official policy, arguing that "because institutions become tangible only through the policies and actions of particular organizations, much of [our] institutional development effort will be focused on improving the policies and procedures of key organizations." Most other donors and developing countries adhere to a similar definition, often narrowing it to mean formal collectives in the public sector, such as ministries, parastatals, agencies, or commissions (Brinkerhoff, 1988a). This book follows these conventions part way, by focusing on institutions in the organizational sense; however, our framework of analysis allows, indeed requires us, to simultaneously consider the effect on organizations of established codes of behavior.

The development community's focus on role-oriented, organized activities unfortunately introduces another point of confusion, since "institutions" in this sense can be used loosely to refer to any formal or semi-formal collective entity. But not all organizations are institutions, any more than all institutions are organizations. As Perrow (1979:186) points out: "Some organizations are merely... rational tools in which there is little personal investment and which can be cast aside without regret. Others become institutionalized. They take on a distinctive character; they become prized in and of themselves, not merely for the goods or services they grind out. People build their lives around them, identify with them, become dependent on them." Many rural organizations fail this test. When one refers to them as institutions it is often to speak hopefully about what they might become, and not realistically about what they, in fact, are. A prime example of this failure is the experience of
many developing countries with agricultural cooperatives, where the gap between what the coops were intended to be, and what they actually are, has been wide (Bennett, 1983; see also Uphoff, 1986).

Our contributors concentrate on formally-constituted collectivities, but without prejudging whether they deserve the appellation “institution” in a strict sense. Further, the fact that the case studies tend to neglect informal modes of social organization, should not be interpreted as indicating that such institutions are less important in development. Nor should the focus of the case studies on discrete institutions be taken to mean that one may ignore the contextual factors within which organizations function. To understand sustainability, it is important to keep this larger environment clearly in view.

**Institutional Sustainability**

What are sustainable institutions? Strictly speaking, the term is redundant, since institutions are by their very definition, sustained patterns of social organization. But as a practical matter, development administrators have in mind collective entities that meet one or more of the following criteria: (1) they are able to recover some of their costs or even become self-financing; (2) they supply a continuing stream of benefits; and (3) they survive over time as identifiable units.

Whether these are sufficient or even necessary criteria of sustainability, however, is often left unclear. Certainly, organizational longevity by itself is a dubious measure, since it doesn’t answer the question of how long a period is required before an organization can be considered sustained. One relevant consideration is whether it has passed through the crisis of succession, if it has accomplished what Weber (1947:363) calls the “routinization of charisma,” so that it can perpetuate itself no matter who holds its offices. Unfortunately, knowing when leadership has taken root is not always possible ex ante.

Self-financing is also a questionable indicator of sustainability, since developing countries are home to many organizations that provide essential services, but whose clientele are so poorly endowed that they cannot perpetuate themselves without indefinite subvention from overseas. Desirable development entities may not be sustainable in this narrow sense. The question of long-term benefit flows is similarly unclear. It sidesteps the critical issue of who the beneficiaries of an organization are, for example, local landowners versus landless laborers. Elite-oriented collectivities are, almost inevitably, more likely to supply their members with a stream of advantages.

Given these difficulties, we would recast the phenomenon of sustainability in systems terms (see Chapter 3). We propose the following simple and widely applicable definition: Sustainability is the ability of a
system to produce outputs that are sufficiently well-valued so that enough inputs are provided to continue production. This expression of the term adequately sums up what it takes for an institution to sustain itself.

Readers familiar with the social science literature will recognize the counterpart of the older notion of "institutionalization," which Huntington (1968:12) defines as "the process by which organizations and procedures acquire value and stability." The important points to keep in mind are that institutions, properly understood, always serve one or more client groups, that to prevail they need to "keep close to the customer," to use private sector terminology (Peters & Waterman, 1982), and that they become vulnerable when they fail to produce goods or services economically.

We want to stress that we imply no value judgment in our definition of sustainability. The concept, as we use it here, is analytic, not normative. Sustainability only requires that someone value an institution's outputs, so it may or may not be desirable for development. Our intention here and in Chapter 3 is to explain why institutions sometimes persist and sometimes fail, not to ascertain whether they ought to do so.

PAST RECORD OF SUSTAINABILITY

Most observers would agree that too few of the rural development organizations supported by international donors over the past several decades have sustained themselves and become institutionalized. But can a more precise figure be put on the problem? USAID recently had 212 project evaluations reviewed from the perspective of sustainability. Twenty-six percent of the projects (all completed in 1985 or 1986) earned strongly negative ratings, 56 percent got marginal marks, and only 11 percent of the projects were considered to have strong prospects for being sustained after the termination of U.S. assistance (Kean et al., 1988:31). Agricultural and rural development projects fell disproportionately into the least sustainable categories.

The World Bank did its own study of this issue, using a different methodology but reaching almost the same conclusion. The bank reexamined the impact evaluations done on 31 projects during 1979-1985 (27 of which were in the agricultural sector) to determine how successful the projects were in keeping up their activities. Occurring about five years after a project is ended, an impact evaluation is a better gauge of sustainability than a normal performance audit. The study concluded that a majority of the projects were either unsustainable (32 percent) or marginally sustainable (26 percent). Only 42 percent of the projects had successfully achieved sustainability (World Bank, 1985).
These two studies of institutional sustainability help quantify the problem, but their findings make little sense without a point of comparison. The fact is that organizations always have high attrition rates, even in a developed country like the United States. No sector is immune. Consider, for example, the sustainability of commercial enterprises. A profit-making organization that provides insufficiently valued outputs usually goes out of business, and this happens with great frequency in the United States. The consensus among academics is that 65 percent of start-ups fail within the first five years (Shapero, 1981). Even the survivors have difficulty making the transition out of an entrepreneurial mode where their founders monopolize most important management functions. Few businesses (the Fortune 500 perhaps) ever attain the status and permanence that characterize institutions.

New not-for-profit ventures also face long odds. Consider the case of American colleges: of the 516 institutions of higher education founded in the United States before the Civil War, 81 percent had ceased to exist by the 1920s (Tewksbury, 1932:28). The same is true of voluntary associations, which are notoriously ephemeral, ebbing and flowing with popular preferences and needs. The history of the Grange, America's most notable farmers' organization of the nineteenth century, is illustrative. Following the first lodge's establishment in Washington, D.C. in 1868, more than 24,000 lodges formed over the next seven years. The peak year was 1875, but already some 5,000 lodges had lapsed into inactivity. Grange membership, which topped out at 450,000 during this period, shrank to 65,000 by 1880 (Nordin, 1974).

The sustainability of public sector bodies is more difficult to determine, for poor service and dwindling clientele can be offset and masked by subsidies from general government revenues. Indeed, one of the leading gripes conservatives have about government is that its agencies and offices are sustained artificially. Being insulated from market competition, public bureaucracies can tolerate considerable inefficiency and lack of innovation, yet still survive. Nonetheless, they are not immortal. Kaufman (1976) has studied this question in the U.S. federal government. Of 175 administrative organizations extant in 1923, 15 percent had been terminated by 1973.

To summarize, American organizations—whether they be formal or informal, private or public, profit-oriented or charitable—have had to fight uphill to get themselves institutionalized. Obviously, none of these examples from the United States can be likened exactly to newly established or reconstituted organizations in developing countries today. This advanced country's experience, however, does give a rough idea about institution-building prospects in the Third World. Recent accomplishments there are probably more noteworthy than generally recognized.
The sustainability of organizations, it is important to note, is not an end in itself, but a means of achieving other development goals. Some organizations ought to disappear, either because they were set up to do a time-bound task and are not needed on a permanent basis, or because they prove unable to perform useful and valued functions. Since development projects are often policy experiments (Rondinelli, 1983), institutional failure can serve a learning purpose, too, though national and international development agencies do seem to have particular difficulty avoiding past mistakes. That unpredictable ventures such as development projects frequently prove unsustainable is inevitable. None of these observations should be grounds for complacency about today's institutional development strategies, but they do counsel for humility about whatever approaches are tried tomorrow. There are no organizational nostrums.

CONCLUSION

Institutional sustainability is not always a feasible objective, nor even necessarily a desirable one in some instances. Insurmountable external and internal problems can terminate almost any formal group. Yet, there is a clear need to improve the odds for sustainability in many overseas development activities. And such improvement is possible, at least in the broad middle range of country and project settings. Enormous experience has been accumulated over the past forty years about what sorts of interventions do and do not work in the long run. Yet, many of the same mistakes seem to get made over and over. Organizational memories are short among the foreign aid agencies, and bias exists in many quarters for institution building of the "bricks and mortar" variety, irrespective of the capacity to actually run such institutions.

For developing countries and international donors to increase their success rate, they need to rethink their approaches to selecting, strengthening, and supporting institutions that serve development purposes, whether in the public, private, or voluntary sectors. This task involves looking anew at project and program design and level of integration into existing organization; at the links between management training and performance; at decision making, leadership, and managerial choice; at developing institutional development strategies at the interorganizational level; at evaluating environmental conditions realistically, anticipating change, and not overreaching institutional limits, and so on. Attention to these areas will not guarantee institutional sustainability, but stand to improve the chances that any given
development effort would continue to provide benefits after external assistance is terminated. Subsequent chapters of this book will document ways in which this goal has been attempted around the developing world.
Institutional Sustainability:
A Conceptual Framework

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Arthur A. Goldsmith, Marcus D. Ingle,
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To explain institutional sustainability, analysts often rely on ad hoc arguments. As noted in Chapter 2, the factors they stress include national level commitment (Heaver & Israel, 1986), in particular a willingness to provide for recurrent costs (Heller, 1982; Gray & Martens, 1983); an appropriate mix of public and private sector institutions (Lamb, 1987; Nellis, 1986); within the public sector, an appropriate delegation of tasks to the various levels of government (Schroeder, 1987); a sensitivity to issues of ecological degradation and long-term agricultural productivity; and adoption of management systems that promote capacity building.

Each of these special explanations is plausible, but they do not necessarily fit together or complement each other. We therefore propose a new overall framework for understanding sustainability, one that consolidates many of the partial analyses of why institutions do or do not maintain themselves over time. Our formalization draws freely from systems theory, contingency theory, and political economy. Hence we

This chapter grows out of research sponsored by the U.S. Agency for International Development's (USAID) Office of Agriculture and Rural Development in the Asia/Near East Bureau to address the problem of development sustainability. The bureau's effort grew out of earlier work on the topic undertaken by the University of Maryland's International Development Management Center and the Department of Agriculture's Development Program Management Center (DPMC) for another office in USAID, the Office of Institutional and Rural Development in the Science and Technology Bureau.
have dubbed it SCOPE, the acronym standing for its three constituent bodies of thought. In this chapter we lay out the SCOPE framework.

We build from the idea that institutions are systems. There are several reasons for starting on this foundation. First, systems theory is general enough to cover sustainability phenomena in institutions of all kinds—from formal collectivities to informal codes of conduct. Second, systems theory is concerned simultaneously with internal processes and the relationship between the system and its environment. It thus forces us to look at a wide variety of social, economic, political, technical, and other factors that affect sustainability. Finally, systems theory emphasizes interrelationships among disparate elements, and so enables us to merge the agro-environmental, economic, and managerial aspects of sustainability.

Systems theory, however, provides little guidance about how to portray internal system processes or external system relationships. Contingency theory fills in this gap. It gives insight into how institutions can best attain congruence with the forces around them. Another reason we employ contingency theory is to avoid the tendency, widespread in the literature on institutional sustainability, to recommend all-embracing, generic actions. We explicitly reject cure-all solutions.

In analyzing the long-term maintenance of institutions, it is also critical that key dimensions of the external environment be characterized. Here is where political economy helps. This school of thought focuses on the exchange of resources, and provides penetrating means to characterize the structure and tasks of institutions. By assisting in identifying the circumstances under which the different kinds of resources will be produced and traded, it also amplifies the contingency approach.

We do not claim to have evolved a rigorous theory of institutional sustainability, one that emerges directly from a set of fundamental propositions. Rather, SCOPE is a heuristic device, intended to provide a vocabulary and perspective that incorporates disparate ideas about sustainability. This does not mean our conceptual framework is atheoretical. The precepts we pull together are rooted in three well-developed schools of thought. And despite their different origins, they are mutually reinforcing, not just a patchwork of ideas.

THEORETICAL OVERVIEW

S Is for Systems

At the heart of systems theory is the idea that many natural and social phenomena can be treated as a "system"—defined broadly as a set of units or elements that interact with one another to convert some types of inputs into some types of outputs. Analysts have found systems every-
A Conceptual Framework

where, in something as simple as a biological cell to something as complex as a nation state.

In an interdisciplinary, comparative field like international development, the idea of a unified mode of analysis is appealing. And indeed, systems theory has long been applied to development topics (e.g., Riggs, 1964; Almond & Powell, 1966). But practical use of the theory has been hampered by its abstractness. In their search for broad and general terms with which to analyze systems of all shapes, sizes and levels of complexity, disciples of this school have created a dense and idiosyncratic vocabulary. We endeavor to avoid the more abstruse of these formulations, and to remain grounded in developing country experience.

From the viewpoint of social science, systems theory has been most usefully employed in analyzing formal institutions or organizations, such as government agencies, business firms, and universities. According to Hage and Aiken (1970), what such collectivities have in common is that:

1. they are created and continue to exist to achieve a common purpose greater than that which could be achieved by individual action;
2. they develop specialized subsystems to subdivide goals and increase efficiency;
3. they use patterns of authority and communication relationships to link and integrate specialized subsystem activities;
4. they depend upon transactions with external clientele and suppliers to provide inputs or absorb outputs necessary to maintain and develop the system.

Sustainability, of course, is not just a problem for formal organizations. It also concerns looser, less clearly defined institutional arrangements—a regional network of farm markets, for instance. One of the advantages of systems theory is its ability to handle both this kind of institution and the more formalized variety. In this chapter, we will discuss how the SCOPE framework can be used to explicate sustainability across the range of institutions.

In looking at human organizations as systems, several key definitions need to be kept in mind (Harrison, 1987):

1. **Inputs** (resources)—the raw materials, money, people, information, and knowledge that an organization obtains from its environment and that contribute to the creation of its outputs;
2. **Outputs**—products, services, programs, and ideas that are the outcomes of organizational action. Organizations transfer their major outputs to the environment, and use others internally;
3. **Technology**—methods and processes (mental, physical, mechanical) for transforming resources into outputs;
4. **Environment**—comprised of the *task environment* (external organizations and conditions that affect an organization's main operations and technologies,
such as clients, competitors, markets) and the general environment (institutions and conditions that have long range impact on the organization and its tasks, for instance the economy, the political system, the state of scientific knowledge, or the national culture within which the system operates);

5. **Purposes**—strategies, goals, objectives, plans of the organization's dominant decision makers;

6. **Behavior and processes**—prevailing patterns of behavior, relationships between groups and individuals;

7. **Culture**—shared norms, beliefs, and values of organizational life;

8. **Structure**—enduring relationships among individuals, groups, and larger units.

An important precept of systems theory is the ordering of systems according to hierarchy. All but the simplest systems are made up of smaller systems, which in turn are made up of even smaller ones, and so forth. Thus a nation state embraces communities, which contains cliques and families, which are comprised of individual human beings. One implication is that any system's environment is also a system in its own right. These external systems influence the flow of inputs to institutions, affect the reception of outputs, and may stimulate changes in internal operations.

Another implication is that the constituent parts of an institution can be seen as sub-systems, driven by their own need to acquire and process resources. Institutions are influenced by these sub-systems as well as their environment. Bureaus, offices, divisions, and other units may contribute to the larger organization's operations, resist them, or change them from within.

**CO Is for Contingency**

Contingency theory has been an important strand of administrative science since it was first articulated in the mid-1960s (Lawrence & Lorsch, 1967; Thompson, 1967). Its major premise is that the optimal structure and management style for an organization are contingent on uncertain, exogenous conditions. Contingency theory thus shares with systems analysis a concern for environment. Every human aggregation or pattern of behavior has to be seen in relation to the complex of outside forces that threaten or promote its survival and expansion. This school of thought within the management sciences disputes the idea that any particular model of organization can truly be considered “best.” The question posed is, best for what?

Contingency theory's basic postulate stands in contrast to the assumption, often made implicitly in social and economic theory, that there
exists a single, optimal way to constitute formal collectivities. Even so astute an observer as Weber (1947), seems to have held this position, for in his discussion of bureaucracy, he maintained that its superiority would enable it to spread everywhere in modern society. Bureaucracies have indeed become ubiquitous. It does not necessarily follow, however, that a bureaucratic model is advisable for all types of collective action.

To the contrary, when they began to look at real organizations in depth, researchers were surprised to uncover a wider range of successful adaptations than they had initially assumed possible (Burns & Stalker, 1961). The Weberian model was found, not surprisingly, to be generally efficient in mass-producing standardized goods or services. Marked by hierarchy, precisely defined roles, and functional specialization, this type of organization performed well in situations that were competitive (so it was important to produce at low cost per unit of output), that were characterized by repetitive tasks (making it easier to divide up labor), and that used mature, stable technologies (meaning innovation was relatively unimportant). But the same model did poorly under the opposite sort of conditions, in which cost was a less important consideration, in which jobs were not repetitive, or in which new technology had to be rapidly adopted. It was discovered that in this domain, less bureaucratic modes of organization were better suited.

The basic propositions that emerge from this line of analysis are the following: (1) No universal organizational principles are right for all situations; (2) The success of an organization depends on it having an adequate "fit" with its environment; (3) To attain this "fit," an organization must possess appropriate structures, strategies, cultures, and so on. Since the mix of contingencies differs from setting to setting, what works well for one enterprise may be unsuited for another. The important point is that the organization has to be able to adapt to its environment—or find a favorable one in which to operate (Katz & Kahn, 1978).

Given the diversity of cultural, political, and administrative conditions prevailing in less developed countries, contingency theory figures prominently in current thinking about development management (Kiggundu, 1989; Hage & Finsterbusch, 1987; Moris, 1981). For example, when Honadle and VanSant (1985) observe that special project management units have proven effective in managing civil works projects or those social service projects with a known technology (such as an immunization campaign), but have been an ineffective way to deliver services, they are making a contingency argument. So is Paul (1982), when he makes the point that successful organizations are those that figure out which tasks need to be centralized and which decentralized. In both instances, the logic follows the same path: the most effective structure of an organization is contingent on the particular factors that confront it.
P Is for Political, E Is for Economy

The term political economy has come to refer to two rather distinct schools of thought. One usage stresses that politics and economics are inextricably linked and must be examined in totality. Political economy in this sense descends from the writings of classical political economists, starting with Adam Smith and ending with Karl Marx, all of whom emphasized that the creation and distribution of wealth were not merely private affairs, but were important matters of state, too. Their intellectual successors today often take radical positions, or at least ones that are critical of contemporary attempts by governments to regulate market forces for the common good.

Political economy in its other sense applies neoclassical microeconomics to political behavior. Relying on methodological individualism, this tradition focuses on "political man" (and woman) who is the exact analogue of "economic man." It sees people in public life as the same purposeful, utility maximizers that they are in private. Political man runs for office, votes, joins political parties, and supports interest groups to advance his own well-being, as he defines it. The intellectual wellspring of this tradition is Schumpeter (1950), whose basic insight has been amplified by Downs (1956) and others. Unlike the other strand of political economy, this one (which also goes by the rubric "public choice") is more often associated with conservatism. Its proponents tend to take a jaundiced view of human nature and to be skeptical about the prospects for social and economic reform through collective action.

Despite the ideological contrast between these two varieties of political economy, they are not philosophically incompatible. In particular, they share the assumption that political behavior is dominated by economic considerations and, conversely, that the production and consumption of goods and services are shaped by legal and governmental practices. An important implication is that political resources can be parlayed into economic influence, and economic resources into political power. (These ideas, of course, are consistent with systems theory. Using its language, the polity and economy are systems that influence each other.) In this line of analysis we find many insights into how institutions interact with their environment, particularly with their constituencies or "stakeholders" (more on this topic follows).

Both varieties of political economy also maintain that economic institutions (such as markets or firms) and political institutions (such as legislatures or bureaucracies) fulfill parallel social functions. Most prominent of these functions are: (1) to aggregate individual choices or preferences into social choices or preferences; and (2) to reduce the costs of interactions or transactions among elements in society. Political economy
has rich theoretical tools for evaluating and interpreting how efficiently institutions carry out these tasks.

It is not surprising (especially in light of contingency theory) that political and economic arrangements vary widely in their ability to sum up preferences or hold down transactions costs. The case of rural influence on national economic policy is an example. One of the challenges facing small to medium level farmers throughout the Third World is to organize themselves as an effective pressure group, the way they have in most Western countries. All other things equal, farmers have the easiest time pushing their claims in nations with competitive political institutions (such as India), or nations that have relatively egalitarian economic systems, particularly regarding the distribution of property (such as South Korea). Political economy is the best body of theory to explain this facet of institutional sustainability.

EXTERNAL SUPPLY AND DEMAND

Since systems theory considers the environment critical, we begin by characterizing environment-system interactions. The main external influence on institutions takes place through factor and product markets. This can occur either directly or indirectly. Let us discuss direct influence first. This entails no intervening steps or factors. The environment has an immediate effect on inputs to the system, its outputs, or its structures and processes. Particularly important are shifts in the amount or valuation of a system's "raw materials" and its "finished products." An example is, where a ministry of education sets new entrance requirements for post-secondary students, thereby forcing a university to modify its mix of course offerings and, ultimately, of faculty. Internal practices have changed in direct response to external demand.

We stress that demand is not a narrow economic concept. What a system's inputs or outputs are "worth" is more than an objective measure of energy produced or marginal costs. It is a subjective measure of utility. As Porter (1985:3) puts it when talking about business firms seeking a sustainable competitive advantage over their competitors, "value is what buyers are willing to pay for." In the field of agricultural development, the "buyers" are not always immediately obvious, as they are in private industry. But they may be even more important.

This is especially true when the "buyers" are political elites. Their attitudes explain how a system may survive while generating few economic goods or services. For example, the seeming contradiction of parastatals in Africa: These are inefficient systems in conventional terms—the ratio of tangible outputs to inputs is low. Their weaknesses are well-known, and, indeed, have often been the target of donor ini-
tiated reforms (World Bank, 1981; Nellis, 1986). Yet parastatals persist. Why? Partly because African elites prize political control over key economic sectors. A similar example is government management of agricultural production, which in many developing countries keeps producer prices at unremunerative levels to provide inexpensive food to the politically salient urban areas (Bates, 1981). In this instance, elites rate political calm in the cities above economic health in the countryside.

One of the most important influences on value is whether a system produces "public" or "private" goods. Political economy defines private goods as items that can be used exclusively on an individual basis. Public goods, by contrast, are nonexcludable or can be jointly consumed. Nonexcludability means it is difficult to prevent other people from using the good once it has been provided to one person. Common rangeland, which is available for all pastoralists to graze their cattle, is an example of a nonexcludable good. Joint consumption signifies that many people can enjoy the good without diminishing each other's enjoyment. Rural roads and flood control dams (but not common rangeland!) are examples of goods that, within broad limits, can be jointly consumed. The special properties of public goods are attracting new attention in development management circles (Ostrom et al., 1988; Nicholson & Connerley, 1989).

There are few pure public goods, but many goods that have elements of nonexcludability or jointness of consumption. Even primarily private goods usually have some public dimension to them, or what economists call an "externality." Often these externalities put a hidden cost on society at large, for example, as occurs with charcoal in the Sahel. This fuel is bought and sold as a private good, but its manufacture has public consequences due to the destruction of forests and ensuing desertification. Because private markets cannot make a complete reckoning of the costs of public goods, the price mechanism gets thrown off, and supply and demand schedules fail to meet where they should. This problem is the main rationale for giving an economic role to nonmarket institutions, since alternative arrangements will not meet the latent demand for public goods or charge prices that fully account for externalities.

By the same token, a system that supplies public goods can have a hard time generating support for its output. The reason is the individual behavioral incentives that result, incentives which tend to encourage "free-riding" or shirking (Olson, 1965). Planners often underestimate the problem. An integrated rural development project in Jamaica, for example, tried to protect soil from erosion (primarily a public good) by paying hillside farmers to build terraces and ditches (primarily a private good). The farmers perceived little individual benefit from soil conservation itself, especially in relation to maintenance costs, and after project subsidies were removed they allowed the earthworks to fall into disrepair (Blustain, 1985).
On the other hand, community solidarity or other cooperative norms can, on occasion, overcome the social inertia that accompanies the provision of public goods. This phenomenon is gaining increasing attention in the management of business firms, where conscious efforts are now widely made to promote so-called corporate cultures that encourage people in the organization to pull together for the good of all (Peters & Waterman. 1982). Hirschman (1984) notes that a similar, though spontaneous, "social energy" unites many grass-roots organizations in the Third World. In our terminology, cooperative action is due to value's many forms, social and cultural as well as political and economic. Adherence to certain norms, such as consensual decision making or centralized authority patterns, can be prized in its own right. A given system will be sustained only if it produces outputs people really want.

What about indirect influence from the environment to the system? Unlike the value considerations just discussed, these are external conditions, incentives, or policies that affect a system's internal processes via some intervening step or factor(s). Primary education is an example. It has an indirect influence on a farming system's cost structure. Better schooling will not affect the price or labor in the first round, but in the second round it might improve the productivity and adaptability of farm workers (Schultz, 1964)—although could be offset by new attitudes toward manual jobs that would tighten up the market for field hands. The point is that a far-off action, for example, a decision at the national level to provide universal primary education, could indirectly help determine the cost of inputs to a local agricultural system.

We classify three types of indirect environmental influence, each of which is particularly important for sustainability: stability, flexibility, and artificiality. Each of them is worth discussing in turn, to show how they affect what goes on inside an institution.

**Stability**

Stability (or the rate of change) in the environment is an important source of indirect influence on a system because it permits greater certainty in setting up internal processes. Institutions are constantly changing as relationships with outside elements shift. Small external changes may require no more than routine corrections elsewhere within the system, but major changes can trigger a system-wide series of adjustments that may prove too much to handle.

It is not surprising that institutions often stumble when they face even moderate environmental change. The more sudden and wrenching the change, the harder it is to cope with. One need only look at the disastrous organizational consequences of civil war in parts of Africa and Central
The Quest

America to see the importance of a minimum level of societal stability and predictability for institutions to maintain their vitality. 5

Flexibility

Flexibility (or permissiveness) in the environment is important because it conditions the possibilities for system change. For instance, if the environment is rigid and unforgiving, due to cultural norms that discourage experimentation, to try new patterns of internal organization may be out of the question, thwarting performance and threatening system vitality. As with instability, the scarce resources that have to be used up coping with an inflexible, impermissive environment may mean that too few are left over to maintain system performance. Rigidities in the environment are frequently cited as a major hurdle for organizations in developing countries (Kiggundu, 1986). Not surprisingly, many remedies for development problems entail a boost in flexibility—for example, calls for bureaucratic reorientation (Korten, 1983), administrative decentralization, or privatization.

Artificiality

Another important facet of a system’s environment is its artificiality, or the extent to which resources from afar (i.e., outside the immediate environment) are available. Artificial environments can be nurturing, as long as the high level of additional inputs is maintained. But they pose a hazard to institutions by encouraging overexpansion and external dependency. A good example is a project management unit created to execute a donor-funded development project. Typically, these units' operating expenses are paid from abroad. Thus they have more and better equipment, more and better-paid staff, and can perform better in the short run than any host country organization with comparable responsibilities. But they often collapse once their foreign support is terminated (Honadle & VanSant, 1985).

While all donor projects are artificial systems, there is a range of artificiality associated with them. On the low end is what might be called the seed grant approach, frequently used by private agencies such as the Ford and Rockefeller Foundations. Here the idea is to provide a few critical resources to induce the host country environment to provide the principal inputs. This has proven effective in building sustainable educational and research institutions in India, Mexico, and other countries.

At the high end of artificiality is the bypass approach that donors sometimes choose for particularly hostile country environments (for instance, Haiti or Zaire) with the intention of creating systems that can be isolated and controlled from the outside. These types of highly artificial
systems are not seriously intended to survive without continued foreign support. Most projects fall between these two extremes—an intervention to build feeder roads that uses local labor and simple technology would tend to be less artificial (especially if the host government is prepared to support maintenance costs), whereas an integrated rural development project with subsidized credit, infrastructure, and marketing services would tend to be more artificial.

Artificiality has an important macroeconomic dimension, too. In recent years international donors have been encouraging developing countries “to get prices right” (World Bank, 1983). Part of the reason is that distorted price signals create unreal environments, which in our terminology, promote artificial systems. Thus the push for devaluing national currencies, raising interest rates, and allowing prices to respond to market forces can be seen as based on an argument about the unsustainability of artificial environments. Unrealistically high exchange rates mask the true cost of imports and promote excess consumption of foreign-made inputs. The resulting dislocations stunt growth and jeopardize the ability of all national institutions to continue purchasing the inputs they really do need.\(^6\)

**INDUCING CHANGES IN THE ENVIRONMENT**

What about interactions that work the other way, from the system to the environment? Systems are not simply determined by the conditions around them. Among human institutions at least, there can be reciprocal influences which lead to adjustments in the socioeconomic setting. Like environment-to-system influences, these reverse effects can also be direct, or indirect. These two sets of relations are illustrated in Figure 3.1.

Direct influence occurs, for example, when additional resources are extracted from the environment or the environment is made to revalue the system’s outputs. The most important mechanism for exercising such influence is through an institution’s stakeholders—that is, individuals or groups who can affect or be affected by the actions and practices of a system. Stakeholders can be customers or clients who purchase a system’s economic goods, constituents who use its political services, or sociocultural elites who cherish its norms. Because of their diversity, stakeholders weigh the products of a system differently. But, in the aggregate, they provide the means for the system to procure the inputs necessary to maintain itself. Over time, stakeholders may adjust their assessment of the system and what it produces. We note in passing that development practitioners frequently underestimate the degree to which a particular project depends on distant (that is, foreign) stakeholders, and overestimate the support from more proximate ones.
How sustainable the system is depends on its proficiency in keeping its stakeholders happy, both at specific points in time and over an extended period. Indeed, one approach is to analyze a system's environment by degrees of "influenceability" (Smith et al., 1980). How do systems affect the "price" set for their outputs? In the private sector this takes place through public relations and marketing. The same sort of activities can occur in the public sector, too. Successful universities in the Third World, for example, have to develop external networks of alumni, parental, business, and, above all, government support.

Indirect, as opposed to direct, system-to-environment influence occurs when internal institutional changes have second-order impact on external policies or incentives. The demonstration effect of pilot projects, where successful small-scale experiments spark major changes in public policy, exemplifies such indirect influence. Donor agencies have played a role here, by trying to sway institutional environments through "policy dialogue," loan conditionalities, structural adjustment programs, and related steps (Brückerhoff & Morgan, 1989).

All the environmental interactions discussed above (whether direct or indirect, and whether from system to environment, or the other way around) affect overall environmental hostility. It is the combination of influences, more than any single one, that determines how much stress they put on a system. The limited demand for a public marketing agen-
Table 3.1
Factors Contributing to Environmental Hostility

<table>
<thead>
<tr>
<th>Factors Contributing to Low Hostility in the Environment</th>
<th>Factors Contributing to High Hostility in the Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DIRECT INFLUENCES</strong></td>
<td></td>
</tr>
<tr>
<td>Level of demand for system outputs</td>
<td></td>
</tr>
<tr>
<td>High level of extant demand; demand creation unnecessary</td>
<td>Low level of extant demand; demand creation necessary</td>
</tr>
<tr>
<td>Nature of system outputs</td>
<td></td>
</tr>
<tr>
<td>Outputs are private in nature, easily translated into</td>
<td>Outputs are public in nature; hard to value or translate</td>
</tr>
<tr>
<td>value or inputs</td>
<td>into inputs</td>
</tr>
<tr>
<td>Characteristics of stakeholders</td>
<td></td>
</tr>
<tr>
<td>Members of lower socio-economic strata, unorganized,</td>
<td>Members of political, economic, or socio-cultural elite;</td>
</tr>
<tr>
<td>low demand-making ability; conflicting interests</td>
<td>high demand-making ability; non-conflicting interests</td>
</tr>
<tr>
<td><strong>INDIRECT INFLUENCES</strong></td>
<td></td>
</tr>
<tr>
<td>Stability</td>
<td></td>
</tr>
<tr>
<td>Environment is stable along economic, political, and</td>
<td>Environment is unstable along economic, political, and</td>
</tr>
<tr>
<td>socio-cultural dimensions</td>
<td>socio-cultural dimensions</td>
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<tr>
<td>Flexibility</td>
<td></td>
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<tr>
<td>Economic, political, and socio-cultural features of the</td>
<td>Economic, political, and socio-cultural features of the</td>
</tr>
<tr>
<td>environment permit and/or support system change</td>
<td>environment do not permit and/or support system change</td>
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<tr>
<td>Artificiality</td>
<td></td>
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<tr>
<td>Environment displays low levels of distortion along</td>
<td>Environment displays high levels of distortion along</td>
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<tr>
<td>economic, political, and socio-cultural dimensions</td>
<td>economic, political, and socio-cultural dimensions</td>
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</tbody>
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... services, for example, may not be much of a problem if it has powerful and supportive stakeholders and if the economy is growing at a healthy clip. Should stakeholders reassess their position or the economy slow down, however, it would change markedly the prospects for sustaining this sort of system. The factors inducing hostility are summarized in Table 3.1.

We want to emphasize that there is operational significance in the linkages and interactions between an organization and key components of its environment. Development agencies have often preferred to intervene at the organizational level in developing countries (though this is changing). Their concern with sustainability has thus been primarily a concern about project longevity. The reason for this organization- or project-specific bias is not hard to trace. Contemporary interpretations of sustainability grew out of the institution building literature of the 1960s (Eaton, 1972; Blase, 1986). It treated the term, institution, as synonymous with organization, such as a training institute, and under-
stood sustainability to mean organizational longevity. The shortcomings of defining sustainability this way have been noted by Honadle (1981) and others who advocate capacity building. But in arguing that what matters is the flow of benefits an organization provides, and not its existence, they still keep the organization as the main unit of analysis.

This focus is problematic. With a phenomenon as complex as institutional development, where so many potential external factors come into play, one needs to avoid organizational myopia. It is essential to keep external (as well as internal) variables sharply in view. One advantage of the SCOPE framework is that it puts organizations into a larger, systemic context. It serves as a continual reminder to pay attention to the articulation between institution and environment.7

CRITICAL DIMENSIONS IN THE INTERNAL SYSTEM

Conditions in the external environment make up only one set of contingencies that system managers must consider. Internal factors need to be weighed as well. Both systems and contingency theories analyze a rich array of characteristics of organizations or social systems (Harrison, 1987; Hage & Finsterbusch, 1987). Two sets of factors have received the most attention: technology and structure. They are important for sustainability, and we discuss them here.

Technology

Technology is usually understood to refer to the application of science to practical problems, such as how to lift the yield of agricultural commodities. However, a literal translation of its Greek roots is “an understanding of the art.” It is in this broad sense that we use the term here. Technology has many dimensions that can affect sustainability. We will discuss four that are particularly important: variability, frequency, economies of scale, and informational asymmetries. (Whether they promote or hamper an organization is, of course, contingent on other factors.)

Variability and Frequency

This pair of technological considerations are related. Variability captures the idea of how standardized or routine the technology is. With invariable technologies, inputs get transformed into outputs in the same way over and over again. Food processing is usually predicated on an invariable technology, as is information collection for field surveys. Other technologies are variable and change every time they are employed. Variability is frequently linked to technical sophistication; more complicated technologies, especially social ones that are only partially under-
stood, are less amenable to routinization. The World Bank's training and visit (T&V) system of extension, which breaks agricultural knowledge into discrete parts, is one example of an effort to standardize what is usually treated as a nonstandard technology (Israel, 1987).

**Frequency** is the number of times a particular operation is performed. Some procedures are done often, some only once. Weeding a crop, for example, tends to be a task that is redone more regularly than land preparation. This may make it more difficult to supervise, but perhaps easier for workers to master. Although there is a similarity between variability and frequency, they are separable notions. Variable activities tend to be performed infrequently, but they need not be. In either case, learning and incentives are affected.

The success of the Kenya Tea Development Authority is instructive. The smallholders involved in this scheme have to pick ripe leaves on almost a daily basis and deliver them to pickup points for immediate curing. With repeated experience they have become highly skilled at these and other operations. The technical requirements of the crop also create regular opportunities for tea officials to monitor and to pay farmers (Lele, 1975). The invariability and frequency of tea technology are not the sole reasons for the authority's long record of accomplishment, but they have facilitated its internal organizational cohesiveness.

**Economies of Scale**

Some social and economic activities are best undertaken extensively, others are done more efficiently on a limited basis. The determining factor is economies of scale, that is, declines in the unit cost of a product or service as the absolute volume per period increases. Many rural development activities are costly because the economies of scale are limited. For example, the development of improved agricultural methods tends to be location-specific. What works in one place may not work nearby. One response has been the farming systems research (FSR) movement, which tries to create relevant agricultural knowledge for smallholders by focusing on micro-level constraints.

This does not mean that economies of scale are entirely absent in agricultural research. Many functions may still be done best in a big way; for example, interdisciplinary studies of crops that require a "critical mass" of scientists to be assembled. Instead, countries often err by Balkanizing their research systems, scattering resources so there is little impact anywhere. The smaller the country, the more serious this potential problem (Ruttan, 1982). To generalize, institutions in the Third World face a major challenge to identify the relevant economies and diseconomies of scale, and come up with the appropriate tradeoffs. Given resource constraints, it is imperative they make the right choices.
Asymmetrical Information

Another trouble with technology is that those who use it have different access to information about it. This interferes with planning, supervision, and the enforcement of contracts. Political economy has developed a vast literature on these so-called "moral hazards" and "adverse choices." Informational asymmetries are a major reason that institutions break down and perform below par.

Perhaps the most noteworthy techno-informational imbalance in the field of rural development concerns principals and agents—the opposite parties in any explicit or implicit contractual agreement. How do principals (local residents, members of a cooperative, and so forth) make sure that their agents (project officers, local leaders) fulfill obligations? Agents are supposed to act on behalf of principals, but they usually have other concerns that encourage them to subvert their principals’ interests. Because of unequal access to information (and hence power) agents are difficult to bring back into line. The resulting clash has undermined many rural institutions’ sustainability.

Consider, for instance, the phenomenon of “goal displacement” that occurs frequently in foreign aid agencies. Project officers are, in theory, expected to act in the name of others (project beneficiaries, home country voters, and so forth) to foster social and economic progress. But project officers also have their own career goals. Their individual success is tied to how well they meet performance criteria set by their superiors.

Herein lies a conundrum. Project officers ought to be judged by their success in promoting development. But development is difficult to measure, so other proxy standards are employed. Informally, a premium is paid for the ability to “move money” (Tendler, 1975). This tends to bias the system toward large-scale, rapidly-executing investments. Why should anyone put much effort into setting up small or gradually maturing projects, which will not use up many funds, and thus not advance his or her standing in the organization? It goes without saying in this case that what the agent prefers may not be the best for the principals.

The history of rural development is littered with well-intentioned schemes that miscarried because they were in too much of a hurry to listen to local people or get in touch with their “felt needs.” Development goals (acting for the benefit of the rural poor or some other “target group”) have been displaced by means (internal performance criteria). Whenever the parties to transactions have dissonant claims, and they lack full knowledge of and ability to control each others actions, sustainability is at risk.

Structure

While technology defines the feasible range for producing system outputs, structure sets the actual boundaries around that process. By struc-
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ture, we mean the way the system is set up—the roles, responsibilities, and relationships of the individuals and groups involved. Markets, families, joint-stock corporations, parastatals, political parties, and ministries of agriculture are all examples of institutions that can be structured in various ways.

The structure of a system is important for three major reasons. First, like technology it affects incentives, encouraging some forms of behavior and discouraging others. For example, an extension agency whose supervisors require field agents to recommend a standardized technical package, is likely in subtle ways to deter feedback from farmers and promote activities to force farmers to go along with the pre-determined program.

Second, structure is important because it influences the flow of information within the system. Timely, usable information is the scarce resource in many systems, and different structural arrangements vary in their ability to acquire and use it effectively. An illustration of this point is the establishment of separate monitoring and evaluation (M&E) units within sectoral ministries. Their charge is to collect and analyze project output and impact data to provide feedback on implementation progress and guidance for future project design. Frequently, however, M&E staff cannot get solid data. Their reports are ignored by project managers or designers. The ministry’s functional structure, which separates M&E from line operations, blocks the incorporation of output and progress reporting into managing the production of goods and services.

Information is closely related to the third issue of transaction costs. These are the equivalent of friction in a mechanical system. Essential staff functions such as planning, supervision, and evaluation all use up energy, but are not immediately productive. Systems tend to minimize outlays (time, financial resources, and so forth) on these and similar activities (Williamson, 1985). Structures that generate excessive transaction costs are often nonviable. This may be a problem, for instance, with some of the more complex integrated rural development schemes.

Structure can differ along numerous dimensions. The most important ones for our purposes are authority, formality, hierarchy, and centralization.

*Exchange versus Authority Relationships*

This distinction, emphasized by Lindblom (1977), helps to separate market and market-like institutions that rely on voluntary exchanges from administrative or bureaucratic ones where relationships are tied to underlying authority patterns (superior/subordinate, patron/client, and so forth). Most organizational structures reflect a combination of exchange and authority. Whether the mix is sustainable depends partly on the output being produced. For reasons discussed above, markets tend
to be an efficient way of organizing the production and distribution of private (nonpublic) goods, but to be less so for public goods.

Food demonstrates how organizational structure can be affected. Food is excludable, individually consumed, and thus something that can be bought and sold for profit. Private markets are willing to handle its distribution, and in most countries they are allowed to. Food also has a public dimension, however, it can be used to eliminate malnutrition among low-income people and augment the common welfare. Relying on voluntary exchange will not necessarily assure that food is equitably apportioned. This is one of the main arguments for setting up non-market structures (compulsory marketing cooperatives, food zones, fair price shops, and so on) to buy and sell staple commodities, as many third world countries do. One drawback is that such institutional arrangements create avenues for authorities to skim off surpluses for their own benefit rather than society's.

Non-market structures often work best in supplying public goods that are tangible and can be used by everyone equally. Research on village-level development organizations in North Yemen (Walker et al., 1983) found them adept at furnishing wells and roads, but failures with intangible public goods such as services, or public goods that were more discriminatory in benefits, such as schools. A study of harambee groups in Kenya found the same patterns (Walker, 1984).

Non-market structures can also be strengthened when they use private goods as prerequisites to get leverage for providing public goods (Olson, 1965). An example is South Korea's New Community Movement. The program provided villagers with building materials to improve or even rebuild their own houses. The quid pro quo was that they also had to contribute labor and other resources to construction projects that would benefit the entire village. The result was more grass-roots participation in community institutions than is found in many places (Goldsmith, 1982).

**Degree of Formality**

Another important dimension of structure is its degree of formality; that is, the extent to which the structure is specified in formal, written rules. Cooperatives are examples of more formal structures, while traditional labor exchange networks are examples of less formal ones. Formal structures tend to have higher transaction costs because they require specialized training, familiarization with new roles, and so forth. This may be one reason why they often fail to take root in developing countries (Esman & Uphoff, 1984).16

**Degree of Hierarchy**

A third dimension of structure is hierarchy; it refers to how "narrowly" or "flatly" a structure is set up. Narrowness or flatness has many concrete
manifestations, including: number of organizational levels, span of control (how many subordinates a given supervisor is in charge of), degree of authoritarianism, and intensity of supervision. Narrow hierarchies tend to be associated with high numbers of levels, narrow spans of control, top-down authority relationships, and close supervision. Flat ones usually exhibit few levels, wide spans of control, collegial decision making, and loose supervision. The former also tend to encourage vertical flows of information, while the latter facilitate horizontal ones.

There is a populist tradition in development that prefers flat hierarchies as a matter of principle, for they tend to be more participatory and less bureaucratic (Montgomery, 1988). Like most global judgments about organizations, this one ignores the basic tenet of contingency theory. Having a lot of people join in an activity is less necessary for some situations than others—consider the different participation requirements of a large-scale irrigation project versus a small-scale tubewell project. The optimal degree of hierarchy (and associated bureaucratic rules) is conditioned by factors inside and outside of the system.

Degree of Centralization

A fourth characteristic of system structure is the extent of centralization. It is often associated with hierarchy, but should be kept conceptually distinct. Centralized systems are those where decision making is limited to a small number of individuals or entities; decentralized ones disperse decision making widely.

Centralization presents one of the classic dilemmas in organization theory (Simon, 1945). Structures that concentrate authority at the center have advantages in being able to make quick decisions, to mobilize resources, and to assure homogeneity. But they pay a price by being out of touch with threats and opportunities at the periphery. To improve their ability to accumulate and process information, some organizations therefore try to introduce elements of decentralization, which can take such forms as deconcentration, devolution, delegation, and privatization (Rondinelli, 1981). Decentralized structures have problems of their own, of course, such as duplication, loss of control, and lack of coordination.

Resolving this dilemma is difficult. An interesting compromise is the structure of agricultural research in India. The Indian Council of Agricultural Research focuses attention on farm problems in thinks are nationally important via its control of central funds for research. Much research is carried out at sub-national institutions, however, which forces scientists to pay attention to specific problems in the states. This approach balances to some extent, the unity of purpose associated with centralization, and the greater responsiveness of decentralization (Lele & Goldsmith, 1989).

Together, the technology and structure of a system determine the
extent of its internal complexity. The less challenging the technology (e.g., oral rehydration therapy in a rural health program) and the simpler the organization structure (such as a focused T&V extension system), the lower the internal complexity. Sophisticated technologies (FSR, for instance) and elaborate structures (such as a multi-sectoral integrated rural development project) increase the level of complexity.

Specifically, complexity can be described in terms of the following dimensions: (1) the number of components (or units); (2) the degree of differentiation among the components; and (3) the degree of interdependence among the components. Systems with fewer components are less complex than those with more. Systems whose components are uniform in function or structure are also of lesser complexity when compared to ones with differentiated components. The same goes for systems whose parts operate independently of each other, as opposed to systems whose components are interdependent. (Interdependence can be thought of as situations where various components' outputs serve as inputs for other components.) Table 3.2 illustrates the relationship among the factors contributing to complexity, in summary form.

STRATEGY CHOICE AND FORMULATION

The study of strategy has long been a topic in military science. For about 25 years, however, students of business affairs have also recognized the contribution of strategy to corporate endurance and prosperity (Ansoff, 1965; Andrews, 1971). Public administration is also beginning to show interest in this subject (Bryson & Roering, 1988), as is the field of development management (Paul, 1982; Korten, 1987; Kiggundu, 1989).

What is strategy? The most common definitions refer to long-term game plans for achieving group objectives, to a coherent set of future projects that have major resource implications and which, because of their size and importance, cannot easily be abandoned or reversed. In formal organizations, strategy is often self consciously managed. Top managers or their delegates engage in ongoing environmental analysis and internal assessment, developing alternative scenarios for action.

We find the standard conception of strategy too restrictive. For one thing, not all institutions have official strategic plans. This is especially true in the less formal sector. For another, official strategies often get ignored or exist only as window dressing. An institution's actual strategy, as shown by its actions, may differ considerably from what is written or intended. Thus we use the term strategy more broadly, meaning a discernable pattern of decisions made by key actors in a system (Mintzberg, 1978). Strategy in this sense need not be consciously thought out or logically consistent. It exists in all institutions, whether formal or informal.
Table 3.2
Factors Contributing to Complexity of Internal System Processes

<table>
<thead>
<tr>
<th>Factors Contributing to Low Internal Complexity</th>
<th>Factors Contributing to High Internal Complexity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technology</strong></td>
<td></td>
</tr>
<tr>
<td>Output is a private good</td>
<td>Output is a public good</td>
</tr>
<tr>
<td>Low or no variability in translating capacity into performance</td>
<td>High variability in translating capacity into performance</td>
</tr>
<tr>
<td>Regular frequency</td>
<td>Irregular or unique frequency</td>
</tr>
<tr>
<td>Principal-agent incentives reconcilable</td>
<td>Conflicting principal-agent issues</td>
</tr>
<tr>
<td>Requires few units to produce</td>
<td>Requires many units to produce</td>
</tr>
<tr>
<td>Tasks are simple, separable into independent sub-tasks</td>
<td>Tasks are complex and require coordination and integration</td>
</tr>
<tr>
<td><strong>Structure</strong></td>
<td></td>
</tr>
<tr>
<td>Formal</td>
<td>Informal</td>
</tr>
<tr>
<td>Hierarchical</td>
<td>Non-Hierarchical</td>
</tr>
<tr>
<td>Centralized</td>
<td>Decentralized</td>
</tr>
<tr>
<td>Relatively few units</td>
<td>Relatively more units</td>
</tr>
<tr>
<td>Units perform similar tasks</td>
<td>Units perform different tasks</td>
</tr>
<tr>
<td>Units operate relatively independently</td>
<td>Units are interdependent</td>
</tr>
</tbody>
</table>

In our framework, strategy is a critical variable in determining how systems change, learn, and increase the likelihood of sustainability. This is due to the dynamic relation between capacity and performance. Capacity is the potential ability to transform system inputs into outputs. As such, it is a characteristic of the system as a whole and cannot be identified with any particular subsidiary element. This means an institution's capacity is not determined simply by its stock of human and physical capital, but also by its proficiency at combining these assets for maximum output. As a latent quality, capacity is not visible. It cannot be directly measured, though there are proxy measures, such as the academic degrees or job experience of its workforce, or the amount and condition of its equipment.

The only way to prove how much capacity exists is through performance, the translation of capacity into concrete results, into action. Because it is visible, performance is directly measurable. As such, it also
provides an indication of capacity. Although a farming zone's latent ability to produce food and cash crops cannot be gauged first hand, its actual output is the best available evidence. Similarly, many developing country organizations look as if they have high capacity, only turn out to be empty shells when actually called on to perform. The interplay between capacity and performance is depicted in Figure 3.2.

While in some systems the level of capacity is fixed, as in a machine whose physical limitations put a ceiling on performance, most human systems are not. They can change their capacity by reflecting on feedback from performance, that is, by learning. With reflection comes the possibility of altering how the system is configured, which in turn may facilitate a new, higher level of performance. Capacity cannot be effectively built without a focus on elevating the performance of a system. Similarly, performance cannot be enhanced unless attention has been given to the development of internal capacity.\(^1\) (We should not overlook the possibility of negative learning, however, whereby institutions acquire bad habits that reduce capacity.)

The stance toward learning or capacity-building provides us with one way to make a conceptual distinction among strategies. Institutions may emphasize either the active dimension ("doing things right"), or the reflective dimension ("doing the right things") (see Drucker, 1985). The pattern of key decisions may stress efficiency, or hot to put known re-
Figure 3.3
System Strategies for Translating Capacity into Performance

Orientation

<table>
<thead>
<tr>
<th>Internal</th>
<th>External</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active</td>
<td>Mechanical</td>
</tr>
<tr>
<td>Reflective</td>
<td>Reactive</td>
</tr>
</tbody>
</table>

It is not uncommon for organizations to either focus on internal processes or external factors. An internal focus means that the environment is taken as given, and the organization must adapt to it. An external focus, on the other hand, involves actively engaging with the environment and perhaps even trying to change it.

The active/reflective and internal/external distinctions are continua, not dichotomies. No real pattern of organizational decisions will ever be totally inward-looking or outward-looking, for example. We find it useful, nonetheless, to think of four generic system strategies, each of which emphasizes a different combination of reflection and environmental interaction. These can be depicted graphically on a two-by-two matrix (see Figure 3.3). The four strategies are ideal types, and thus do not correspond completely to what the key actors in real organizations are planning or doing at any given time. Actual strategies waver back and forth, combining elements of each. We present this typology for conceptual purposes, as a tool that captures two of the most important strategic choices, not as a pigeonhole in which to stick any particular institution.

As can be seen from Figure 3.3, decisions that underscore the active dimension, and that focus internally, comprise what we term a mechanical strategy. Such an approach promotes the translation of capacity into performance, but with minimal reflection, either about the skills themselves or the particular environment.
or about the larger environment in which the system is found. The strategy may encourage proficiency at well-defined tasks, but ignore external changes that threaten it with obsolescence.

Mechanically oriented strategies are, \textit{ceteris paribus}, easier to bring off than the other ideal types because they rely so much on repetition and specialization. The result can be narrow efficiency, something that Adam Smith first showed to be the key to high productivity. A contemporary example of the successful use of a somewhat mechanical strategy is the AMUL (Kaira District Cooperative Milk Producer's Union) dairy cooperatives in India, whose longevity and growth are predicated partly on the fact that the internal functions of milk delivery are repeated over and over (Uphoff, 1986:141-43). This approach only works, however, because the market for milk is stable. In other words, there is a good correspondence between the organization and its environment. An equally mechanical strategy would not succeed under different circumstances.\footnote{1}

An \textit{adaptive} strategy also emphasizes activity at the expense of learning. But because of its external bearings, which allow it to meet new problems with old skills and techniques selected from its repertoire, such a strategy encourages greater adjustment to the environment. When farmers cultivate larger plots of land or traders handle more food following an increase in demand, the agricultural system of which they are a part is conforming to altered environmental conditions. Similarly, nomadic herdsmen who compensate for collective overgrazing by expanding their individual herds, and farming communities that deal with land shortages by cultivating steep, easily eroded hillsides, are all adapting to external changes. These sorts of quantitative adjustments (using more resources, but in familiar ways) do not require the degree of knowledge acquisition needed for making qualitative changes (using resources in novel ways).

When a system follows a \textit{reactive strategy} the stress is on learning about how to improve internal operations or skill levels. The reaction to outside disturbances tends to turn inward, toward innovations to meet the new environmental conditions. A rural credit bank that, following a rise in its default rate, revises its lending procedures and starts a new training course for loan officers is applying a reactive strategy. The center of attention is inside the system.\footnote{13}

Contrast these examples to how they would look if the actors involved had chosen \textit{interactive} strategies. In this type, the focus of reflection and learning is the environment. Rather than just accepting and adjusting to externally-imposed conditions, the idea behind this strategy is to reach out and influence the environment. The herdsmen would realize that over-grazing is a problem of collective action and would try to affect
their surroundings by reducing the overall cattle population. The farming community would try to influence its environment by getting the government to implement land reform policies. And, the credit bank would identify and seek to modify the external factors that make farmers default, such as low crop prices, shortages of complementary inputs, marketing bottlenecks, and the like.

The most famous early experiments with integrated rural development all tended to favor interactive organizational strategies. Because they cut new ground, pilot projects such as Etawah in India or Comilla in former East Pakistan (Bangladesh) had to cultivate external constituencies. They linked up with patrons located in key government positions (Blair, 1981:47-50). Leaders of second-generation projects have lacked the entrepreneurial flair of their predecessors. Among the explanations for such projects' limited staying power is that, despite good intentions, they have moved away from the interactive strategy of maintaining bridges to the larger political arena.

The SCOPE framework holds, we would reiterate, that real strategies combine mechanical, adaptive, reactive, and interactive dimension, and that the optimal mix is a contingent decision. No single one of our ideal types is best for institutions across the board. Learning is time-consuming and risky, and it draws resources away from the performance necessary to generate the outputs that will keep the system viable. How much learning is appropriate depends partly on the complexity of two internal contingent elements (technology and structure), and on the hostility of the external environment—each of which affects activity and reflection differently.

An apt case in point has been the debate over "blueprint" versus "learning process" approaches to rural or community development. Advocates of the latter (Sweet & Weisel, 1979; Korten, 1980) have sometimes seemed to argue that it is always the way to go. Yet, others have countered that, in certain circumstances, a third, "structured-flexibility" mode is superior (Brinkerhoff & Ingle, 1989). With the SCOPE outlook, this particular controversy fades in importance. The "correct" strategy for facilitating the transformation of capacity into performance changes under different internal and external conditions.

When are our four strategic types most likely to work? We can speculate about some possible scenarios. Low internal complexity (for example the use of technologies whose outputs are private goods and are performed frequently) makes the conversion of capacity to performance straightforward. Combined with a supportive environment—one that is stable, flexible, not artificial, and that displays constant demand—systems may be able to flourish and endure with a minimum of
learning. In other words, more mechanical strategies can probably be sustainable under this combination of internal and external circumstances.

At the opposite extreme are internally complex systems (for instance, ones employing technologies whose operations are performed infrequently and with high variability each time). If this type of system confronts a hostile environment as well, we deduce that a mechanical strategy is not likely to be viable. Internal operations will command too much attention from management, as will the external threats. Given limited administrative and entrepreneurial resources, the system is unlikely to be able to cope with this combination of pressures.

For such a system to increase the odds of sustainability, one of two things must happen. Either internal processes must be streamlined, so that managerial attention can turn to interactions with the environment, or ways must be found to lessen the external hostility to permit more concentration on running the complex internal processes. In the first instance, the system is moving toward an interactive strategy, in the second, toward a reactive strategy. Too often, however, institutions respond to crisis neither by reaching out to the environment nor by innovating, but by turning inward and relying on familiar routines—becoming more mechanical, to use our terminology. This happens in the United States, for example, to companies in declining, "smoke-stack" industries (Cameron, 1983). It is frequently a fatal prescription.

Unfortunately, the central tendency in most developing country organizations is toward mechanical strategies that stress control, not reactive or interactive ones that emphasize learning. Donor-funded projects are no exception. Most have major mechanical dimensions, dictated by the financial oversight and accountability demanded by the donors' own stakeholders (for example, by the United States Congress for USAID). Development assistance could do more to improve the capacity of Third World institutions to scan their environments and take stock of their inventory of special skills and other resources, so that they might be better able to set attainable, consistent goals, and to agree on steps to be taken to reach desired positions.

We want to reiterate that internal variables need not be given, closed to managerial discretion and control. As the lever for bringing internal and external conditions into line, strategy embraces manipulations of structure and technology. Formal, centralized, narrowly hierarchical structures and complex technologies do not lend themselves to strategies that emphasize learning. They may be suited to the active dimension of translating performance into capacity, but they hinder reflection, should this be called for. By the same token, informal, decentralized, and flat structures or simple technologies are, in theory, better adapted to learning. The downside is that this combination of structure and technology
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would appear to impede the translation of capacity into performance, and to require more resources to do so.

**IMPLICATIONS FOR POLICY-BASED DEVELOPMENT ASSISTANCE**

Dissatisfaction over the performance and sustainability of development projects has encouraged donors in recent years to turn to non-project alternatives. Using the language of the SCOPE framework, the effort is to change environmental parameters, as opposed to the internal processes of the smaller, bounded systems targeted by the project approach. The reason is that no matter how great the capacity of a system, a hostile environment can reduce its performance below acceptable levels. In recognition of the potentially overwhelming impact of the environment, policy-based financial assistance has gained popularity, its intention to make country environments less distorted by allowing markets freer play. Structural Adjustment Loans from the World Bank are the clearest example of this new direction.

Ironically, nonproject interventions are often unsustainable themselves, because of their artificiality. As we noted earlier, artificiality is a function of the complexity, intensity, and size of a system. "Policy dialogue" to influence the overall economic climate in a host country, often assumes too much national sophistication and effort (Paul et al., 1989). Domestic reforms may require administrative skills the country does not possess. The scale of resource mobilization may be unrealistic given the nation's resource endowment, while monitoring compliance with conditionalities may necessitate information that does not exist, or is too soft to be of practical value. Faced with the multiplicity of largely uncontrollable factors that contribute to environmental hostility, external stakeholders often have little leverage to make institutions' surroundings more hospitable (Lindenberg, 1989).

Moving up from the organization to the wider environment raises several other operational difficulties. First, reaching beyond a formal collectivity, which can be treated as a unitary decision making entity, implies a significant leap in complexity. At the environmental level, strategic management requires coordinating far more decisions with a view to sustainability.

The second difficulty flows directly from the first. Above the single organization, the locus of management responsibility becomes diffuse and hard to identify. Few managers are willing or able to take responsibility for system performance; simply too many factors are beyond their control. Taking the wider systems view requires managers who are comfortable with lobbying, influencing, and politicking; yet many of the managers in developing country public sector agencies concentrate al-
most 100 percent on internal control (Rondinelli, 1982; Kiggundu, 1989).

Third, is the issue of setting boundaries. The organization offers a clearcut definition between inside and outside, one that coincides with what managers are responsible for and what they are not. The systems perspective, however, encourages looking at linkages and interactions; it is a problem to decide when and where to stop. Often, the incentives inherent in a particular situation discourage looking very far.

Fourth, and related to all the others, the environmental or wider system viewpoint draws in a greatly expanded set of stakeholders and clients. Looking at sustainability as including farmers, middlemen, input suppliers, and so forth, vastly increases the groups that need to be heeded. Further, it raises the issue of competition and conflict among these constituencies. As experience has shown, one cannot assume that everyone’s interests will mesh together harmoniously.

Institutional sustainability is a complex phenomenon and thus requires a range of interventions. Targeting individual organizations is still important, but needs to be done both as part of a larger set of actions and with the recognition that important factors will always lie beyond the specific target. The systems level perspective can open eyes to the kinds of linkages and interactions that might otherwise be overlooked.

NOTES

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1. This is really a definition of a real, acting system according to systems theory (Kuhn, 1974:24).

2. Another serious criticism of systems theory has been its reliance on a structural-functional methodology. Structural functionalism has been criticized because of its circular logic: if a system is viable it must have x and thus if it has x it must be viable. We make no such assumptions about the sufficiency of any particular structural variable.

3. One strong advantage of contingency theory is to correct the frequent practice of recommending nostrums to promote sustainability, for instance that all development activities need to become self-financing (Heller, 1982). There are obvious exceptions to this particular rule, since many such activities are purposely intended as a transfer payment mechanism.
4. The most thorough effort to apply the market metaphor of politics to developing countries is put together by Ichman and Uphoff (1971), who posit a general theory of political resource exchange.

5. Comparative studies do not, however, find much correlation between overall political stability and macroeconomic growth in the Third World. See Goldsmith (1987).

6. Although the logic of price reform condemns artificial environments, we do not deduce that artificiality is always a sign of system ill health. With prices, for example, conscious manipulation can have positive outcomes, as when tariffs are used to protect infant industries. Our point is that distortion exposes the hierarchy of systems to greater risk of non-sustainability.

7. In fact some of the older institution building concepts, as developed by Milton Esman and his colleagues at the University of Pittsburgh, did put great stress on organizational linkages. But this insight does not appear to have had much practical effect on project design. See Esman's contribution to Eaton (1972).

8. Economies of scale should not be confused with learning curve effects, which refer to efficiencies based on experience (i.e., there is usually a tendency for unit costs to drop as cumulative experience grows). Learning curves are also an important factor in institutional sustainability. To continue with the example of agricultural research, rapid turnover in scientific personnel frequently impedes the accumulation of institutional knowledge, and reduces institutional performance.

9. The idea of transaction costs sheds further light on the principal-agent problem, noted earlier. It is expensive to enforce responsible behavior on agents who have reason and opportunity to cheat. This is one reason that rural cooperatives and joint production schemes often founder.

10. Getting popular input is not always feasible, either. Participants incur transaction and opportunity costs, and these sometimes outweigh the gains of taking part in planning or implementation. An adverse benefit/cost ratio is one reason that farmers often "vote with their feet" by withdrawing from government marketing associations, for example (Goldsmith, 1986). The irony is that too little voice and influence make it difficult for systems to learn and adapt their behavior.

11. The notion that learning and improvement occur through repetition and experience is the foundation of action training, which builds capacity by getting organizations to contemplate their short term performance (Kerrigan & Luke, 1987).

12. The dairy strategy also has an interactive dimension to it, particularly through the entrepreneurial activities of its leader. See Korten (1980).

13. As Kiggundu (1989) points out, however, developing country organizations often cannot handle even these routine operating tasks.

14. According to Chandler's (1962) monumental study of business enterprise, changes in organizational strategy typically drive changes in structure. It is plausible that technology is what often drives strategy, but all three are so interrelated it is probably futile to try to identify ultimate causality.
Analyzing Institutional Sustainability: An Action-Inquiry Methodology

Kurt Finsterbusch and Marcus D. Ingle

Swift change is predictable in the arena of international development. Governments rise and fall; administrations change. New issues are raised; new terminology becomes popular. As noted in Chapter 2, sustainability has emerged as a key development issue in the past few years. Such issues frequently present a dilemma for policymakers: how to respond appropriately, in the short run, with incomplete knowledge, and act in ways that will improve the knowledge base for future decision making. First, policymakers need to find out how to deal with immediate problems, and second, they need guidelines with widespread applicability. In the long run, they need to feel that they have a more reliable basis for action, although they have little money for inquiry. Therefore, policymakers require a methodology that will marshal available knowledge to guide their immediate decisions and actions while simultaneously improve the knowledge base to increase the effectiveness of their future ones.

In this chapter we propose the Action-Inquiry Methodology (AIM) as a generic methodology to deal with policymakers' twin needs for action and knowledge. AIM utilizes both an action stream and an inquiry stream. The action stream has priority because AIM is designed for operating agencies that have action mandates. In this setting, research is justified only to the extent that it contributes to the effectiveness of actions in a cost effective manner. In according priority to action over research, AIM resembles evaluation research. What Weiss (1972:7) points out for evaluation research is also true for AIM: "Evaluation takes
place in an action setting, where the most important thing that is going on is the program. The program is serving people. If there are conflicts in requirements between program and evaluation, priority is likely to go to program."

THE ACTION-INQUIRY METHODOLOGY

The Attractions of AIM

Two features of AIM make it suitable for policymakers' dual goals of addressing a current policy issue while advancing the knowledge base for dealing with the policy issue more comprehensively in the future. First, AIM uses a theoretical framework that builds upon previous findings and organizes these findings into a coherent causal model of the policy concern, in this case, institutional sustainability. The framework identifies generic causes of a policy concern that can be translated readily into specific recommendations for addressing the concern in specific operational settings. AIM both uses and tests the framework in field applications. When the initial theoretical framework is revised on the basis of field applications it should become a more reliable tool for addressing the policy issue in the future.

The second attractive feature of AIM is its utilization of a low-cost research approach. AIM is designed for use by organizations that must devote the bulk of their limited funds to action programs and their improvement. AIM should have wider application to a variety of policy issues than a more expensive methodology with more resource intensive data collection procedures and measurement techniques.

The two main cost-saving procedures of AIM are the use of convenience samples rather than random samples of cases, and the use of expert opinion rather than objective measurement for many of the variables in the framework (see Finsterbusch, 1990; Finsterbusch & Hamilton, 1978). Often these procedures are required not only to keep costs low, but also because random samples and many objective measurements are simply impossible to obtain. A variety of low-cost methods have been devised for developing country contexts (see Chambers, 1981; Kumar, 1987).

Because cost-saving procedures may undermine confidence in the results when judged by standard research criteria, AIM employs a priori hypotheses to address this issue. After-the-fact explanations of findings are usually plausible, but are also untested and should be viewed skeptically. AIM, however, uses a theoretical framework with a priori hypotheses that are confirmed or disconfirmed in field applications and other studies. The framework merits considerable confidence because it is built upon previous findings and relevant theories. The field studies
of a convenience sample of cases and the other studies in AIM then add to, or subtract from the a priori confidence levels of the framework's hypotheses (Finsterbusch, 1990; see also Brinberg & Kidder, 1982; Kirk & Miller, 1986).

The Characteristics of AIM

AIM is unique in its combination of three attributes: (1) the blend of action and research; (2) the mingling of inductive and deductive generation of knowledge; and (3) the triangulation of three principal types of research on the policy concern being studied (a field study of available cases, a systematic case review of an available data set, and postproject reanalysis of the field cases).

The blend of action and research is not unique to AIM; it is shared by numerous policy studies. Argyris, Putnam and Smith (1985) have promoted this type of research as very important to the advancement of science and have extensively examined many issues that it raises. They view the two objectives as compatible, as long as the essential features of science are not neglected. These features are "hard data, explicit inferences, empirically disconfirmable propositions, and systematic theory" (Argyris et al., 1985:2). AIM attempts to make inferences explicit and use disconfirmable propositions and systematic theory. Its main problems concern the hardness or quality of its data and the rigor of its methods, because there are trade-offs to combining action and research (see Rossi & Freeman, 1985:33-8). They routinely interfere with each other. According to most research methodologies, the research function requires that most aspects of the situation under study be kept constant, so that the effects of the intervention can be isolated and measured (Weiss, 1972:Chap. 4). The action function, however, requires that changes be made when they are needed. In the Action-Inquiry Methodology the action function has priority.

The AIM field team is both an action and research team. It studies the conditions existing before the intervention and estimates their future consequences. This serves the research function, but it also provides the knowledge basis for action. The field team employs this knowledge base and the theoretical framework to identify ways to improve outcomes. In cooperation with participants, the team works to make appropriate changes in the organization. It also tries to appraise the likely aftereffects of those changes. The data on the conditions and practices and the estimates of consequences then become one case in a cross-sectional analysis of a set of cases on the correlates of the policy concern. This analysis advances the knowledge base on the policy concern, and the learning derived from it should improve future projects. The research interferes little in the project improvement activities, being performed
by one or more practitioners rather than an expert evaluation research team.

The second special attribute of AIM is the combination of inductive and deductive modes of knowledge generation. Most policy research is inductive. (For discussions of the role of theory in applied research, see Argyris et al., 1985; Argyris & Schon, 1977; and Bulmer, 1986.) The conventional means of addressing a new issue has been a four step process. An issue is made a focus of concern. Experts are called upon to make observations and suggest solutions. Case studies are conducted, usually with an emphasis on the successful cases. And finally, a summary of findings from these cases is made, to draw lessons. These inductive steps, however, do not systematically test hypotheses and, therefore, they retain a troubling edge of uncertainty. The four steps stop short of one final and useful operation: a theoretical framework for the systematic study of the issue, leading to a more integrated understanding.

On the other hand, the development, application, testing and revision of a theoretical framework can provide more than a list of factors related to the policy concern. It can also provide a picture of how the pieces fit together, and thus a greater ability to understand the policy concern in completely new settings. A theoretical model makes it easier to translate knowledge from one setting to another or from the general case to the specific case, because its dimensions usually capture the important aspects of the new case. If not, then new dimensions can usually be integrated into the framework. Of course, further testing is required, but the model suggests both the direct and indirect (or higher order) impacts of each new factor.

The third special attribute of AIM is triangulation, the use of more than one research methodology to increase integrity. High quality and quantity research cannot be conducted in many policy situations. In order to provide timely and inexpensive knowledge to guide action, research shortcuts must be taken. Such shortcuts, however, increase the danger of errors and misguided actions. Triangulation reduces the chances of harmful mistakes. The triangulation that is proposed in AIM, consists of: (1) field studies of available cases (usually few in number); (2) a systematic case review of an existing data set or sets; and (3) postproject field studies of implemented changes. (For helpful discussions of triangulation, see Denzin, 1978; Finsterbusch & Hamilton, 1978; Jick, 1979.)

Triangulation is used to build confidence in findings. As field studies are likely to be small in number, involving only a few weeks in the field and one point in time, the testing and refinement of the framework should not depend upon these field studies alone. Thus, AIM includes two additional studies, the case re­view of existing data, and postproject field studies as the second and third legs of the research triangle. The
three legs complement one another. The field studies provide detail and insights from many directly involved people. The systematic case review of an existing data set can test the framework on a larger number of cases than is covered by the field studies, but in less detail and sometimes without coverage of all the factors in the framework. The postproject reanalysis of the case studies adds a second point in time and can document outcomes that could only be estimated in the original field study. The reanalysis also makes the field study an experimental or pilot test of some of the framework’s hypotheses. On the other hand, it is time consuming, and therefore cannot help to improve current projects.

DETAILING THE METHODOLOGY

An overview of AIM is presented in Figure 4.1. The methodology has five phases: (1) preparatory, (2) investigation, (3) design, (4) implementation, and (5) final.

Preparatory Phase, Action and Inquiry Tasks

The preparatory phase consists of two tasks in the action stream and two tasks in the inquiry stream. In the action stream, the focus is on identifying a major policy problem and assuring that sufficient political commitment exists to support the resolution of the problem. In the inquiry stream, the focus is on consolidating existing knowledge on the policy problem and developing a theoretical framework for orienting action and empirical inquiry.

Each action in the preparatory phase will be unique due to the circumstances of the policy concern. Typically, a policy concern can be identified by its high visibility and importance to key stakeholder groups. Commitment should be measured by the willingness to provide resources for resolving the problem.

In the inquiry stream, the synthesis and summary of previous findings begins with a literature search to create a list of all variables that have been found to affect the policy concern. The research team ranks these variables as major, average, and minor influences on the dependent variable, and notes where they believe variables have greater or lesser influence.

The next inquiry task within the preparatory phase is to develop a conceptual framework explaining the dependent variable by means of all major and average variables and, if necessary, some of the minor variables. (For instructions on how to construct theories, see Bacharach, 1989; Dubin, 1969, 1976, 1978; Hage, 1972; Stinchcombe, 1968.) At this stage, the framework should be inclusive; later research will weed out the unimportant variables. Nevertheless, the framework should in-
Figure 4.1
Overview of Action-Inquiry Methodology

<table>
<thead>
<tr>
<th>ACTION STREAM</th>
<th>INQUIRY STREAM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1. Preparatory Phase: Identification and Characterization</strong></td>
<td><strong>Step 1. Preparatory Phase: Identification and Characterization</strong></td>
</tr>
<tr>
<td>1. Identify problem or policy concern.</td>
<td>1. Review, summarize and synthesize previous findings.</td>
</tr>
<tr>
<td>2. Obtain necessary commitments for AIM applications and select application sites.</td>
<td>2. Develop a conceptual framework for study of the issue including variables, indicators, and propositions.</td>
</tr>
<tr>
<td><strong>Step 2. Investigation Phase: Reconnaissance and Description</strong></td>
<td><strong>Step 2. Investigation Phase: Reconnaissance and Description</strong></td>
</tr>
<tr>
<td>1. Plan AIM applications.</td>
<td>1. Plan AIM applications.</td>
</tr>
<tr>
<td>2. Investigate cases using the conceptual framework to determine needed course of action.</td>
<td>2. Gather data from cases on variables in conceptual framework to test propositions and the predictability of the framework.</td>
</tr>
<tr>
<td>3. Test practical utility of framework.</td>
<td>3. Apply framework to the analysis of available data set(s) to test its utility.</td>
</tr>
<tr>
<td><strong>Step 3. Design Phase: Analysis and Recommendations</strong></td>
<td><strong>Step 3. Design Phase: Analysis and Recommendations</strong></td>
</tr>
<tr>
<td>1. Use results of investigation to make operational recommendations.</td>
<td>1. Analyze all data and revise framework.</td>
</tr>
<tr>
<td>2. Plan an implementation strategy.</td>
<td>2. Plan an evaluation study of the implementation changes.</td>
</tr>
<tr>
<td><strong>Step 4. Implementation Phase: Application and Adaptation</strong></td>
<td><strong>Step 4. Implementation Phase: Application and Adaptation</strong></td>
</tr>
<tr>
<td>1. Obtain commitment to recommendations.</td>
<td>1. Study implementation process.</td>
</tr>
<tr>
<td>2. Recommendations are implemented at the site.</td>
<td>2. Develop guidelines on the policy concern for general application.</td>
</tr>
<tr>
<td><strong>Step 5. Final Phase: Knowledge Consolidation and Dissemination</strong></td>
<td><strong>Step 5. Final Phase: Knowledge Consolidation and Dissemination</strong></td>
</tr>
<tr>
<td>1. Seek to institutionalize AIM results.</td>
<td>1. Study implementation results.</td>
</tr>
<tr>
<td>2. Seek to institutionalize AIM procedures.</td>
<td>2. Further revision of the conceptual framework and the guidelines for action.</td>
</tr>
<tr>
<td></td>
<td>3. Report and publish findings.</td>
</tr>
</tbody>
</table>

corporate only a few theoretical perspectives to organize and inform the framework.

**Investigation Phase, Action Tasks**

The investigation phase, the second major step of AIM, consists of three tasks in the action stream and three in the inquiry stream. The first action task is to seek out sites for addressing the issue of policy concern. When selecting settings for action and inquiry, it is clear that the use of explicit criteria is well advised, since limited resources and
time will force difficult choices. One generic criterion can be recom-
mended: cases should be selected that have significant variance on key
dimensions (without over-selecting very unusual, unrepresentative
cases). This is the way to get the most out of a small number of cases.
The second task in the action stream is to gather information using the
conceptual framework that would enable the AIM team, along with the
participants, to know how to improve the project in terms of the policy
concern.

When a project has been selected for application of AIM, a field team
is assembled to plan and execute enhancing changes. This team designs
its activities using three inputs: the framework itself; the research results
to date; and the experiences of the assistance team, the target organi-
zation and involved stakeholders. This step, therefore, applies proven
management practices but informs them with the framework and the
project experience.

The third task in the phase two action stream is to test the utility of
the framework for gathering information that is more useful for practice.
All components should be evaluated for their degree of usefulness and
additional components or changes should be recommended.

Inquiry Tasks

The first task within the investigation phase of inquiry is the devel-
lopment of a research design for field testing of the conceptual frame-
work. The research method that is recommended for most AIM studies
is to have each field worker fill out, in the field, a questionnaire on the
framework dimensions. Usually the investigator is experienced enough
to determine the most effective data gathering methods for the specific
research conditions. The growing literature on action research suggests
that the participants should be included in the design and implemen-
tation of the research (Bryant et al., 1983; Whyte, 1989; Whyte et al.,
1989). Time or other conditions might preclude the action research
approach, but it should be considered. One demonstrated technique for
including participants is a series of team planning meetings (see Chapter
7).

The second task is a related but independent study using the concep-
tual framework. The first study consists of a set of field studies that are
guided and analyzed by a common framework. Field studies require
many person/days and probably are few in number. The second study
applies the framework to a larger set of cases but must utilize existing
data sets. Agencies usually have evaluation reports and other documen-
tation on many projects and programs. Sometimes the information on
a set of 30 to 100 cases is sufficient for a systematic review. (For discus-
sions of systematic case reviews, see Eisenhardt, 1989; Finsterbusch,
1985; Finsterbusch & Van Wicklin, 1987; Yin, 1984.) One or (preferably)
two coders would use the documents to fill in an information questionnaire much like the one used for the field study. Two coders provide some basis for estimating inter-coder reliability and the level of confidence to be accorded the data. Confidence scores should be indicated by each coder, as in the field study. The coded data are then correlated and the results are compared to hypothesized relationships in the framework.

Sometimes it is easier to interview 30 to 100 experts on 30 to 100 projects than to use documents as described previously. Each interview produces a completed questionnaire, which is analyzed for the correlates of the policy concern.

The third inquiry task in the investigation phase is to have the AIM field team gather data on every variable in the conceptual framework for that case. It is recommended that every AIM field team member fill out an information questionnaire and their scores be averaged. An alternative procedure is to have the team fill out the information questionnaire together with the benefit of group discussion. Group discussion, however, has drawbacks. It often becomes dominated by one or a few members (Delbecq et al., 1975). Perhaps the best procedure is to have each member fill out the questionnaire separately, average the results and then discuss the average scores in the group. We also recommend that the evaluators indicate on a five point scale the level of confidence that they have for each of their judgments. Once several cases are audited this way, the information questionnaires can be statistically analyzed to see if the variables in the framework are related as hypothesized in the framework. In all probability, the number of cases will be too few to "test" the framework hypotheses, but the correlation results will either increase or decrease confidence in these hypotheses.

**Design Phase, Action Tasks**

Next comes the design phase of AIM, which has two action tasks and two inquiry tasks. On the action side the investigation is used to design recommendations for improving the organization in terms of the policy concern, and to plan the implementation strategy. If possible, an action-research methodology has been used, heavily involving local stakeholders in research, recommendations and implementation.

**Inquiry Tasks**

On the inquiry side, all the research of the investigation phase is reviewed to determine how the framework should be revised and to plan future research. The task here is to evaluate the utility of the framework for research purposes. The field and document (or interview) studies will indicate important variables that are overlooked by the framework
and some framework variables that are unimportant, need redefinition, or need more available indicators. The framework and its indicators must be not only theoretically sound but also practical. It must be appropriate for the existing research conditions. Then several questions need to be answered. The first of these is whether the hypothesized relationships in the framework are supported by the cross-sectional correlations. The second question is whether or not all competing explanations are discredited by the findings. The third question is what additional information and tests are needed to build confidence in the revised framework and its hypotheses. The answers to these questions should produce a relatively reliable framework and suggestions for further testing. The second task is a plan for future research. This will involve returning to the field sites and conducting follow-up impact studies of changes that will result from the action recommendations. Ideally these studies would follow the experimental design of the pretest-posttest control group design (Campbell & Stanley, 1963). Where randomization is possible, the posttest-only control group design is a true experimental design. Most likely, however, the research team will have to settle for the one-group pretest-posttest design.

**Implementation Phase, Action and Inquiry Tasks**

The fourth phase is implementation. On the action side, it involves securing commitment to the recommendations by both decision makers and participants, and then executing those recommendations. On the inquiry side, phase four involves research on the implementation process itself and development of general guidelines on the policy concern. It is important to study implementation because outcomes are determined not only by what is done, but also by how it is done (Rossi & Freeman, 1985). Furthermore, the guidelines, which are the major inquiry output for improving institutional performance, should contain instructions on the process of change as well as policies, structures, linkages and technologies that should be put in place.

**Final Phase, Action and Inquiry Tasks**

The final phase involves the consolidation and dissemination of knowledge. On the action side, AIM seeks to institutionalize the implemented changes and processes designed to address the policy concern. It also seeks to institutionalize the AIM procedures in the action agency so that AIM would be employed whenever needed. On the inquiry side, AIM performs the last of the three triangulated studies. It investigates the results of the implemented changes by a field study, using mainly informant interviews and empirical measurements of outcomes. Whenever
possible, control groups or cases are used to demonstrate more clearly that the changes in outcomes are due to the implemented changes. The post-project field studies complete the data gathering for AIM. The next task is to analyze all the data and critiques of the reported results and make final revisions of the framework and the guidelines. The last task is then to report and publish findings.

**THE APPLICATION OF AIM TO THE INSTITUTIONAL SUSTAINABILITY INITIATIVE**

AIM emerged as a product of a USAID-funded applied research effort, the Institutional Sustainability Initiative (ISI). Figure 4.2 gives an overview of AIM for conducting the ISI pilot applications.¹
The Action Stream of ISI

During the 1980s, the ISI emerged from the recognition that sustaining the benefits of donor financed development efforts was a major policy problem. At USAID's 1987 conference on the future of agricultural and rural development in Asia and the Near East, sectoral specialists from the agency's field offices (missions) emphasized institutional sustainability as a priority. In response USAID pledged to develop practical field guidance on this complex policy issue. Thus, the preparatory phase of the action-inquiry stream for the sustainability policy issue began; with a field level call for action and a USAID-Washington response. USAID's Bureau for Asia and the Near East took a leadership role in the ISI, and provided some initial funding. The ISI stressed "high quality and practical field guidance"; minimal funds were available for research. What research would be done had to be low cost and closely tied to practical results.

The next step in the preparatory phase was to obtain field level commitment to the ISI. Field missions were encouraged to request a sustainability assessment and design for their new and ongoing projects in the agriculture and rural development sectors; few projects had been designed with serious attention to sustainability.

In the investigation phase of AIM, the conceptual model devised in step one is systematically applied in the field to identify sustainability and conclusions. Informal contacts with field missions facilitated the selection process, and invitations for applying the model were plentiful.

The planning for the initial ISI applications was somewhat ragged. The first field teams went out while AIM was still being developed, and their instructions were minimal. Experienced consultants and USAID personnel were left to their own devices more than hindsight indicates was optimal. Some misunderstandings occurred. Changes were instituted later to assure that field teams were better oriented prior to their departure for the field. The SCOPE framework was used during orientation in two recent field cases, Thailand and CARDI, to orient the ISI team (see Chapters 5 and 12).

For each field site, a scope of work for the sustainability consultancy was negotiated, which melded the goals of the donor, the mission, and the assessment/design team. The team met prior to departure, and planned their activities, adapting issues and questions to the field setting. When the ISI team arrived in the field, they established an in-country team, which then reviewed and modified the interview and analysis formats. Finally, the sustainability questionnaire was used to gather relevant data and carry out the assessment.

Several difficulties were encountered in the investigation phase. In many instances the scope of work required time-consuming adaptation
to add the distinctive action-inquiry perspective, plus extra negotiations once the teams were in the field. Consultants had to be trained in the use of the questionnaire. However, it is noteworthy that field responses to the assessments were very positive. Clients were pleased, willing to cover local costs, and interested in arranging future field work.

The third phase of the action stream involves the design of alternatives: recommending policy, structural and management changes to improve sustainability. The team used the SCOPE framework (see Chapter 3), the assessment data, and suggestions from local stakeholders to recommend changes. The ISI team members tried to act as resource persons and facilitators in this process. From the interim assessment and dialogue with interested parties, the team developed a final assessment and made recommendations to USAID and developing country officials.

In step four of AIM, sustainability recommendations are accepted by the organization and are implemented with monitoring of results built into the process. Follow-up visits to several countries indicate that many recommendations have been agreed to and some implemented. However, to date, no formal mechanism exists to track this dimension. One of the current ISI activities is the design of such a mechanism to follow up the work of the first three action stream phases.

Finally, in knowledge consolidation and dissemination, evaluations will continue to be conducted in the field and assessments will be fed back into the research stream. For ISI this would mean that additional sustainability evaluations will be done in the field, and assessments of the utility of ISI action guidelines will be made. In fact, time is needed to develop the guidelines and assess their utility from a sustainability perspective. Currently there are neither mechanisms nor resources for this type of systematic evaluation.

The Inquiry Stream

The preparatory phase in the research component of AIM began with a review and synthesis of previous findings on sustainability, leading to the development of the SCOPE framework and the selection of indicators for its variables. It is important to point out that converting a conceptual framework into indicators and research hypotheses normally leads to some revision of the framework. Moving from theory to research design requires further clarification of concepts and relationships.

Phase two in the inquiry stream consisted of planning the investigation, the field testing of the SCOPE framework, and its application to an existing data set. The major activity in planning the research was the construction of an information questionnaire for the field team, incorporating the SCOPE variables. The logistics and politics of the seven field applications led to the decision that only the Washington-based
social scientist members of the ISI teams filled out the questionnaire in six of these cases.

Team members conducting field inquiries were experienced researchers and interviewers; they determined their own research tactics and methods. Invariably they interviewed key project personnel and stakeholders and reviewed previous studies and documents on the project. Their knowledge was converted into a form that was comparable across cases when they completed the information questionnaire on their project or institution. They also reported on the aspects of SCOPE that were most useful for analyzing sustainability issues in the particular case, and what was not useful. Furthermore, they discussed errors and weaknesses in the application of the SCOPE hypotheses to the case.

The SCOPE framework has also been applied to a set of 25 agricultural education institutions (Schram, 1990). Twenty-five expert questionnaires have been statistically analyzed, and the results support all of the SCOPE propositions, though not always at statistically significant levels (Pearson coefficient of $r > .34$).

In the design of the inquiry stream, the team compiled and analyzed the data from the field studies and data set studies, and revised the SCOPE framework accordingly. The field cases have not been selected randomly but are the total set of projects for which a request was made for a sustainability analysis. It may be assumed that the on-site interest in action surpassed the research interest in the selection of cases. This means that the sample parameters cannot be used as estimates of the population parameters. It also means that correlation findings cannot be generalized uncritically. However, unless the cases are rather peculiar, the correlation analysis can be cautiously used as a guide until more representative cases can be analyzed. The main precaution to take in using the findings is to note the unique features of the set of cases. Two such features stand out. Since each project requested a sustainability analysis, these cases probably have sustainability problems and also have project personnel who are concerned about them. Second, six of the seven cases studied to date involve agricultural education or research institutions. (The seventh involves the institutionalization of a credit program.) The institutional homogeneity of the case limits the generalizability of the correlation results (for further discussion, see Chapter 14).

Preliminary findings from the data set study of 25 agricultural education institutions indicate that most management factors have surprisingly weak correlations with prognoses of sustainability. Relations with the minister of agriculture seems to override most other contributing factors. It is hoped that further analysis will ferret out the contingency factors that determine which aspects of the SCOPE framework are critical in different conditions.
The implementation phase of the research component of AIM involves research on the implementation of changes in the studied projects, and the development of guidelines for designing and implementing projects for sustainability for donor and country use. ISI has not reached this phase or the final phase—when the team returns to the field and analyzes the results of the implemented sustainability changes, revises the SCOPE framework and the guidelines, and disseminates the findings.

**THE INSTITUTIONAL SUSTAINABILITY INITIATIVE EXPERIENCE WITH ACTION-INQUIRY**

In ISI, each field team member is concurrently a project researcher and an institutional development specialist. Research must be added to the consultant's action-oriented duties. Fortunately there is substantial overlap of these two functions, since both are grounded in and rely on the same conceptual framework. On the negative side, however, there are some shortcomings in the integrity of both the action and inquiry streams, as a result of implementing them concurrently, as is done in AIM. This section elaborates on several of the primary interactions and their implications for the integrity of the action and inquiry streams.

One unique characteristic of AIM is how the action stream feeds the inquiry stream and vice versa. In the ISI case, the development of the SCOPE framework (an inquiry task) was the result of a commitment to improve institutional sustainability by USAID (an action task). This, in turn, was answered with a commitment by social scientists to develop and refine theory-based guidelines (an inquiry task). These steps taken in 1987 and 1988 were the beginning of the alliance of the action and inquiry streams.

There were additional trade-offs during the other AIM steps. In the investigation phase, for example, client organizations in the field requested professional consultants with a proven "problem-solving" or action orientation. As a result, several of the AIM team members acceptable to the field had little ability or interest in the inquiry dimension of the assignment. In these cases, additional effort and resources were needed from the core AIM team to ensure that both streams of AIM were handled adequately. The core team learned that problems of this type could be partially avoided—if initial communications with potential client organizations and consultants clarified the dual action-inquiry nature of the enterprise. In response to greater explicitness about AIM's dual objectives, potential clients and consultants seemed to be more selective about their involvement in this activity.

Likewise, in the design phase there were several trade-offs between the action and inquiry steps. Some consultants found handling both the action requirements (more than a full-time assignment) and the inquiry
requirements too time-consuming. As a result, questionnaires were only partially completed in the field, or the number of responses was minimal. Others found the SCOPE model difficult to follow in lieu of their own conventional consultancy model. Over time, better protocols for using SCOPE in the field were developed, the orientation process was improved, and streamlined action guidelines were developed (Halpern, Ingle & Brinkerhoff, 1988). On the inquiry side, the SCOPE questionnaire was simplified, based on consultant feedback.

Because of limited time for institutional sustainability analysis in the field, most recommendations came from the outside consultants. Local staff did not internalize the ISI model. Again the applications of the methodology indicated that more time must be allotted in the design phase of the action stream to ensure that local stakeholders understand and take ownership of the organizational changes, and that they integrate the recommendations into their practices.

The model is still young. Steps four and five are not fully realized at this time. Future sustainability evaluations in implementing organizations in the final phase will further test SCOPE's utility. As new case studies are initiated and old ones are reexamined, the framework will not remain static. New insights will lead to new iterations of the propositions, variables and indicators, to new pilot studies, and to new organizational behavior, which will lead to more and more reliable ways to enhance sustainability.

SUMMARY AND CONCLUSIONS

Often, development organizations will opt for no research component and will be resistant to internal evaluations because stakeholders see inquiry as distracting from action, taking away precious resources of time and money. In addition, people do not want solutions that are still in the developmental stage; they do not want to be the subjects of social experiments (Rieken & Boruch, 1974). Rather, they want experts to provide them "tried and true" solutions to their problems. In the case of the sustainability policy issue, USAID and developing countries would ideally like prescriptions to ensure the sustainability of their development efforts. However, at present there is insufficient knowledge and experience to give this assurance, hence the ISI and AIM. The methodology has both advantages and limitations as operationalized in the ISI. Its major advantage is that knowledge is developed for improving future projects or institutions, at the same time that current projects or institutions are helped. Its major limitations are low budgets for research and compromised research procedures. For example, due to its action bias, field applications are not selected on a random basis. Opportunities for AIM applications are determined through a process of self-selection,
by organizations that confront the policy issue of concern and have resources to support an action-oriented consultancy to deal with the issue as they perceive it. What can be done here, as evidenced by the ISI application, is to set up a series of field application selection criteria to ensure that the self-selected cases meet certain minimum standards.

It is also difficult to deal with the investigation phase, in both the action and inquiry streams, in a systematic and consistent manner. As the membership of AIM field action-inquiry team changes, depending primarily on the specific action requirements of each site, some inconsistencies occur in the application of the framework. To deal with this problem each new team member needs to be carefully oriented and debriefed on the conceptual framework and the AIM procedures for action and inquiry. In the early field cases the ISI team underestimated how much orientation was needed.

Although AIM falls short of an optimal social science research methodology, it excels as a useful method for addressing high-priority policy issues. Because AIM explicitly links development activities and research inquiry, the methodology is appealing to organizations that might otherwise be resistant to perceived interference and distraction in the form of research. Asking an agency to support dual objectives of action and inquiry is feasible, as demonstrated in the ISI case. The tension between action and inquiry is real, but when action can play the predominant role and inquiry can be shown to instruct action, then agencies are willing to support the dual strategy.

Another beneficial attribute of the AIM is the opportunity for transfer of a large part of the "ownership"—for both the action and inquiry components of the policy issue—to the client organizations. Although the action and inquiry steps are initiated by outside agents, the ultimate objective of AIM is to build the capacity of the organizations involved in the policy issue to continue with their own action and inquiry steps in the future, consistent with the precepts of action research. Thus substantial time is devoted during the field applications to adapting the underlying conceptual framework and methodology to the client organizations through the use of the "action-training" approach (Kerrigan & Luke, 1987). This feature of AIM has tended to increase the interest of the client organizations in the approach and its conceptual underpinnings.

This chapter shows that AIM has some limitations, but many advantages. As applied in the ISI, AIM appears to deal adequately with policymakers' needs for action and knowledge, especially in cases where the need for action is a driving force and resources for research are limited. Although somewhat complicated in concept and actual application, AIM does appear to suitably handle the organizational "conflicts in requirements between program and evaluation" so typical in public and private
organizational settings (Weiss, 1972:7). Thus, AIM has potential for wider application and use in a range of emergent policy areas.

NOTES

The authors would like to recognize the assistance of Janet P. Stauss in editing multiple iterations of this chapter, and acting as a liaison and creative coordinator for the writing team. The authors also acknowledge the work of Susan Schram, who contributed to the organization and substance of this chapter.

1. This methodology has roots in earlier work. A precursor that was less systematic and had fewer research tasks in the inquiry stream was first used in USAID project evaluations, and drew heavily on the evaluation research and social experimentation ideas of Boruch (Rieken & Boruch, 1974).
PART II

PROMOTING INSTITUTIONAL SUSTAINABILITY: CASE EXPERIENCES
5

Sustaining Benefits of the Thailand Northeast Rainfed Agricultural Development Project

Marcus D. Ingle, Terry D. Schmidt, and Utai Pisone

The farmers in Thailand's Northeast region are the poorest in the Kingdom. While half of the 17 million hectares in the region are devoted to farmland, little of it is, or can be, irrigated. Most of the 2 million rural households in the Northeast depend on erratic rainfall for crop and livestock water. In addition to unreliable water supplies, farmers must cope with low soil fertility, poor infrastructure and inadequate agricultural technology. The region is home to some 7 million Thais living in "absolute poverty" (TDRI, 1987).

In 1967, the Royal Thai Government initiated a new development project, with assistance from the U.S. Agency for International Development (USAID), aimed at strengthening the Northeast region's agricultural institutions. A modern experiment station was constructed at Tha Phra outside of Khon Kaen, and the University of Kentucky was contracted to assist in institution-building activities. This facility is now referred to as the Northeast Regional Office of Agriculture and Cooperatives (NEROAC).

By the mid-1970s it was recognized that the traditional agricultural research and extension approach used by NEROAC had only modest success in improving the productivity of the Northeast's rainfed agricultural systems. The reasons for this included: (1) Northeast farming systems were highly diverse and environmental factors varied from location to location; (2) most research was discipline or commodity oriented rather than cropping or farming systems oriented; and (3) research was typically basic in nature and thus the results were often not relevant to
farmers' needs (Craig et al., 1987). A new approach was needed to enhance the region's adaptive research capability, and to improve the technology generation and transfer linkages among NEROAC and the nine line agencies of the Thai Ministry of Agriculture operating in the region.

The Northeast Rainfed Agricultural Development (NERAD) project, initiated in 1981, is the first major development initiative in Thailand aimed at specifically addressing the needs of poor farmers in rainfed areas. The purpose of the NERAD project, as stated in the loan and grant agreements, was to establish in eight representative tambons (village clusters) a replicable agricultural development program for increasing farm productivity and farm income, particularly among lower income farmers. The long-range intent was to establish, with NEROAC and the Northeast region, a continuing program for generating and transferring useful technology from the basic research level to the farm in response to agro-ecological and socioeconomic conditions.

Institutional sustainability was an integral dimension of the NERAD project design. At the end of the seven-year investment period, with a total funding of $15 million (including Thailand and USAID contributions), several of NERAD's project outputs were expected to be institutionalized and in wide use throughout the region. The NERAD project thus provides an excellent setting for applying the SCOPE framework introduced in Chapter 3, and for understanding the dynamics of institutional sustainability in agricultural development.

More specifically, the NERAD case study addresses three issues raised by the SCOPE framework: (1) the relative importance of proximate and distant environmental factors in the sustainability of an agricultural development project; (2) the type of project management strategy that contributes to sustainability when environmental conditions are internally complex and externally uncertain; and (3) the relationship between project implementation performance and project sustainability. The unique point of departure for the NERAD sustainability assessment presented in this chapter is its longitudinal perspective. Each of the authors was involved with the case at more than one point in its development; this long term association provides more insight into the dynamics of sustainability than is possible through a one-point-in-time analysis.

SUSTAINABILITY AND THE NERAD PROJECT

What does institutional sustainability mean in the NERAD project context? This question needs to be answered from several vantage points: the conceptual, the operational, and within the operational—both the planned and the actual.
Conceptual Definition

Institutional sustainability is defined by the SCOPE framework as the ability of a system to produce outputs that are sufficiently well-valued so that enough inputs are provided to continue output production at equal or greater levels. This definition can be more clearly understood by referring to the project sustainability model illustrated in Figure 5.1.

The model elucidates the major features of institutional sustainability in a project context as follows: The system refers to the project during its design and implementation or its investment period. The outputs refer to the specific project elements generated during the investment period, some of which, by design or redesign, are intended to be continued following the end of the investment period. The SCOPE definition serves as the operational definition of project sustainability. Thus project sustainability is measured by the extent to which outputs produced during the investment period meet all of the following three sustainability conditions: Outputs must continue to be valued by external stakeholders, they must continue to be produced through some organization and management apparatus (though not a particular one), and they must continue to have financial and human resources provided during the return-on-investment period.

Conceptually, there are three reasons why a project element from the investment period may not be sustained during the return-on-investment period. First, the element may not be targeted for sustainability during the investment period. Most projects contain substantial elements that are intended to end when the investment period is completed. For example, a special project manager is frequently required only for the implementation period of the project. Second, some negative environmental factor, such as unanticipated budget crisis in a project's host organization, may directly cause some project element to be discontinued and thus not sustained. Finally, the project's sustainability strategy may not be successful due to poor design, poor implementation, or some combination of the two. The sustainability strategy may fail during the investment period or return-on-investment period (World Bank, 1985).

Project activities in both these periods are influenced by, and influence, factors in the environment.

Operational Definition, Planned Sustainability

Explaining the operational meaning of sustainability in the NERAD project setting is not easy due to the "messiness" of the task (Ackoff, 1974). In the first place, the project's sustainability can be viewed from the planning perspective of the project designers and implementors. This is a definition that often evolves considerably over the life of a
I. Implementation of project design elements that are and are not expected to continue following the initial project implementation period, and implementation strategies.

1. Implementation of sustainability strategies in line with project design.
2. Replanning and implementation of modified sustainability strategies based on changes in environment (external and internal) and lessons learned.

Project elements sustained:
1. Continued valued outputs
2. Continued organization and management
3. Continued resources

Project elements not sustained:
1. Not targeted in design
2. Major negative change in external conditions
3. Project strategy not successful

Environmental Forces:
- Political
- Economic
- Environmental
- Social
- Technological

Time:
- Year 0
- Year X
project based on environmental changes and lessons of experience (White, 1984). Secondly, sustainability can be viewed in actual terms from the post-project investment period. In this case a definition of which project elements are actually being sustained is frequently difficult to measure and can also change considerably over time.

The NERAD project design documents were ambiguous with respect to the project elements that were to be sustained. The project purpose included three hierarchically linked elements—a replicable program, productivity increases, and income increases. This contributed to considerable confusion over the project's objectives during the early years. There was justification for (and proponents arguing for) the project as (1) area development, (2) research and development, (3) institutional strengthening, (4) bureaucratic reorientation, (5) extension of agricultural technologies, (6) better linkages between research and extension, or (7) some combination of these (Schmidt, 1989). The initial design did not specify which project elements were or were not expected to be continued following completion of the seven-year investment period.

The NERAD project objectives were revised many times, reflecting both the complexity of the project and the need of project actors to reach consensus on the project's main thrust. A "final" design was established in February 1987 and consisted of five levels of objectives: goal, intermediate goal, purpose, outputs, and intermediate outputs. In this version of the design, the sustainability objective was explicit at the intermediate goal—to institutionalize and replicate within the ministry, research and development approaches for optimizing the performance of rainfed agro-ecosystems, in accordance with rational policies and farmers' needs in Northeast Thailand. By 1988, the farming systems research and extension (FSRE) approach was agreed to as the prime target for NERAD sustainability (Craig & Pisone, 1988). The FSRE approach embodies five strategic objectives (integration, responsiveness, site-appropriate technologies, use of lessons learned, self-sustaining and replicable activities) and three types of elements (integrative structures and processes, analytical tools and techniques, and technical innovations and technologies). During the final two years of the project, a major thrust of NERAD was to sustain farming systems research and extension and its most promising elements.

Operational Definition, Actual Sustainability

As to the actual sustainability of NERAD as of 1989—at the end of the project investment period—the results are generally positive. NERAD can be described as a project that had a slow and somewhat shaky beginning and a steady and successful finish. According to the project completion report:
The strong finish occurred because in the last three and a half years of the project, the project team focused on identifying, consolidating, replicating and disseminating their findings. The project produced an impressive set of well-documented analyses, reports, handbooks, and other useful final products. During the last year, a series of ten workshops were held to analyze lessons learned and transfer both policy and technical implications to interested users so as to sustain the relevant aspects of the effort (Schmidt, 1989).

Three of NERAD's sustainability accomplishments were in evidence during 1989. These included: (1) the continuation of some key elements in each of NERAD's output clusters; (2) the continuation of organizations and management structures for producing valued output in the future; and (3) the continuation of resource flows associated with output production. Important elements in each of NERAD's major output clusters (e.g., integrative structures, analytical tools and technical innovations) are being continued by NEROAC, other government agencies, donor agencies and organizations outside Thailand. NEROAC, for example, is continuing the NERAD-developed FSRE program. In 1989, four new provinces chose to use the NERAD pre-replication model. Annual technical workshops have become a common feature of virtually all donor projects administered by NEROAC. In addition, the most recent budget request included 14 million baht ($560,000) to continue the NERAD approach using regular government funding.

Other Thai government agencies have adopted many of the analytical tools and technologies developed by NERAD. For example, the Department of Fisheries set guidelines, developed handbooks, and trained officials in the NERAD-developed "Fish in Paddy" technology. The donor agencies, including USAID, New Zealand, and others have incorporated major elements of NERAD's approach into their assistance efforts. Finally, several international organizations have distributed NERAD materials and are using several of the tools in their own programs.

On the other hand, uncertainty lingers about the long-term sustainability of NERAD. As the Final Report (Schmidt, 1989) states, "fundamental changes in the way that MOAC [Ministry of Agriculture and Cooperatives] departments interact has not been institutionalized; while the behaviors and attitudes of many technical staff and some lower-level policymakers have been changed, the changes have not been totally accepted and it's not certain whether the integrative behaviors initiated by the project will continue."

NERAD'S CONTEXT AND CHRONOLOGY

The parent organization for the NERAD project is the NEROAC center. The NERAD project design documents point out that NEROAC
in 1981 was already a veteran institution in the Ministry of Agriculture. After more than 15 years of existence, the center obtained formal government recognition and status in 1976, as shown by the provision of a permanent budget and staff positions.

In the late 1960s the Ministry of Agriculture envisioned the Tha Phra center as the major agricultural research and development unit for the Northeast, and that the ministry would fully decentralize R&D operations for the region. This would include the permanent assignment of a sizable number of qualified scientists and technical staff to the facility.

During the 1970s, however, the center was not functioning as intended by its early supporters (Robert et al., 1985). Moreover, progress was painfully slow in the move toward permanent staffing and budgeting for the research and development mission. It was evident that the desired decentralization of research and development to NEROAC would not be possible, given the overall scarcity of resources and the stronger position of the Bangkok-based agricultural research facilities. In addition, the emergence of Khon Kaen University as a major Northeast agricultural research and development organization, with more flexibility and international largesse than the Tha Phra center, supported arguments that NEROAC could never become the focal point of regional R&D excellence. The R&D function was not viewed by key political actors in the government as a legitimate NEROAC function.

During the decade, a valued role for the Tha Phra center did emerge: to oversee the planning and coordination of all agricultural and cooperative activities in the Northeast. The problems of declining or stagnant crop yields, deforestation, the disappearance of land reserves and analogous situations in other regions, were evident to agricultural officials in Bangkok, and they looked for rational means for responding to them. Concurrently, the ministry found it difficult to find operational, administrative, and staff development resources to support each of 72 changwats (provinces) and their respective amphoe (districts). Therefore, the idea of an intermediary entity with coordination and support responsibilities was an attractive one. Following a series of negotiations, a new framework for the regional ministry centers emerged.

As a result of a 1981 Thai policy, each of the four regions of Thailand has an official Regional Office of Agriculture and Cooperatives. The duties of the office are set by the parent ministry. Each office functions to decentralize sector operations at the regional level, and to serve as the regional planning and coordinating entity for both operations and support to ministry units and other agricultural and cooperative development agencies. The regional office also manages special projects. In 1987, the Civil Service Commission approved additional permanent staffing positions for the regional offices funded through the Ministry of Agriculture's operating budget.
At the beginning of the NERAD project, the Northeast Region Office at Tha Phra was a medium sized agricultural complex with several administrative office buildings, an eighty-bed training facility, a modern library, a well-equipped laboratory for soil, fertilizer and water analysis, and a large experimental farm for crops and livestock. The staff included more than 60 full-time professional administrative and research officers and a large contingent of farm workers and technicians. One consistent feature of the center is the pride the staff takes in the physical facility as reflected in its high quality upkeep and maintenance.

NEROAC is administered by a U.S.-educated director who has been associated with the Tha Phra center for over 20 years. The regional office is subdivided into four units: coordination and planning, operations, public information and training, and administration; each of these units is headed by a senior Thai civil servant. The operations unit is responsible for the administration of 14 activities encompassing research and development, papaya production, special government campaigns such as “Greening of the Northeast,” and foreign-supported development projects. The regular ministry budget funds permanent salaries and operating expenses. Special allocations fund high-priority government projects. Donor-assisted projects are administered through the Thailand Department of Economic and Technical Cooperation.

Most of NEROAC's senior staff had been at Tha Phra since the outset of the NERAD project. They had considerable experience working with the ministry, the other regional entities, local government officials, and development assistance professionals. Operating in a project mode was familiar to them; through the process of trial and error they had learned what donor and government projects could and could not do, and what discretionary resources (both personnel and financial) were available through project mechanisms. The institutional premises the senior staff brought to the NERAD project included:

- Thailand would continue to support several high-visibility and politically important project activities of the center, such as the "Mobile Service Units for Farmers." Support for special Northeast projects, along with expected regular budget support, would be adequate for NEROAC to maintain a moderate program for the foreseeable future.

- NEROAC would continue to be involved in special region-specific research and development activities not of substantial interest to other Thai R&D institutions or those supported by donor agencies. The NERAD project fell into this latter category as did the special research efforts on papaya, native chickens, and several crop diversification efforts.

- Special government projects and donor-assistance projects were valued highly due to their flexibility for hiring temporary staff and their discretionary use of funds for equipment, travel and staff. The ministry operational budget was
entirely allotted to permanent staff salaries; virtually anything innovative could only be funded through project mechanisms.

- Within NEROAC, project benefits such as new equipment and training opportunities flow primarily to the implementing unit and to the director's office.

- Future prospects for civil service promotion for senior staff within the center were very limited. Projects offered one readily available mechanism for getting recognition, challenging work, and opportunities for personal advancement and travel.

- As a government entity, NEROAC would continue to be constrained from generating its own internal funds from its special activities. All funds generated at the center are required to be turned back to the treasury with no crediting of the NEROAC account. The capacity and incentives for entrepreneurial behavior in generating funds for operational and recurrent costs would be minimal.

The NERAD project was initiated in 1981 and completed in February 1989. A summary chronology of NERAD's implementation process is presented in Table 5.1.

NERAD represented a substantial break from the past for NEROAC. Earlier projects focused on the Tha Phra center and its institutional performance and capacity. NERAD's focus was the rainfed agricultural production system in the Northeast, in selected locations, reaching from the farmer through the village, district, province and department governmental apparatus to NEROAC and its coordination role. Instead of being primarily a research program, NERAD's role was to induce an adaptive farming systems research and extension program in the Northeast that would be sustained and expanded following project completion. NERAD had three major clusters of outputs. First, the project established organizational structures and processes to improve coordination of other agencies. Second, NERAD developed analytical tools and techniques. Finally, NERAD designed and tested innovative technologies that would help rainfed farmers improve productivity and farm income.

At the initiation of NERAD, therefore, a new project management unit with new rules and new linkages (both internal and external) needed to be established and put into operation. In the first year, a systematic process of project start-up was followed. It emphasized development of the necessary capacity within NEROAC and cooperating implementing agencies to perform their new adaptive research and development tasks in multiple, dispersed geographical locations. During these early years, the focus was to get the various actors at different governmental locations to perform new behaviors associated with the farming systems approach (Schmidt, 1984). There was little time, if any, to worry about what would happen four or five years in the future, and even less time to work on a sustainability strategy for the project. It was difficult enough, given
### Table 5.1
### Chronology of the NERAD Project

<table>
<thead>
<tr>
<th>Event Description</th>
<th>Year(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initiation and Start-up of NERAD</strong></td>
<td>1981-1982</td>
</tr>
<tr>
<td>Detailed planning to lay groundwork for target village clusters.</td>
<td></td>
</tr>
<tr>
<td>Technical assistance contract negotiated with U.S. university.</td>
<td></td>
</tr>
<tr>
<td>Administrative mechanisms established to mobilize project resources and coordinate implementation of nine governmental departments.</td>
<td></td>
</tr>
<tr>
<td><strong>Activation of Project Technical Activities</strong></td>
<td>1983</td>
</tr>
<tr>
<td>Cooperating departments implement activities as laid out in the project design.</td>
<td></td>
</tr>
<tr>
<td>Cropping systems triage methodology refined along with conduct of assessments and initiation of on-farm trials in project areas.</td>
<td></td>
</tr>
<tr>
<td><strong>Full Implementation</strong></td>
<td>1984-1985</td>
</tr>
<tr>
<td>Ministry and provincial work groups engaged in coordinated planning and implementation of 50 activity sets.</td>
<td></td>
</tr>
<tr>
<td>Mid-term project evaluation and audit recommending that strategy for replication be developed.</td>
<td></td>
</tr>
<tr>
<td><strong>Transition to Consolidation Focus</strong></td>
<td>1985-1986</td>
</tr>
<tr>
<td>Substantial turnover in the donor agency staffing of the NERAD project support unit, and positive support for project.</td>
<td></td>
</tr>
<tr>
<td>Project objectives clarified; philosophy shift from one of &quot;cutting NERAD losses&quot; to &quot;consolidating NERAD gains.&quot;</td>
<td></td>
</tr>
<tr>
<td><strong>Sustainability Strategy Design and Implementation</strong></td>
<td>1987-1988</td>
</tr>
<tr>
<td>NERADICS concept for information scanning and dissemination was developed.</td>
<td></td>
</tr>
<tr>
<td>Outside consultants help develop sustainability strategy which includes targeting and marketing outputs to external stakeholders.</td>
<td></td>
</tr>
<tr>
<td>Technology transfer workshops planned and implemented.</td>
<td></td>
</tr>
<tr>
<td><strong>Project Completion</strong></td>
<td>1989</td>
</tr>
<tr>
<td>Workshops on NERAD &quot;Policy Implications&quot; and &quot;Replication.&quot;</td>
<td></td>
</tr>
<tr>
<td>Final Project Evaluation Report.</td>
<td></td>
</tr>
</tbody>
</table>

constant political pressures for visible implementation performance, to achieve the detailed annual work plan targets.

In NERAD's middle years substantial progress was made in developing several rainfed technologies and refining various research methods, including the "agricultural triage" approach. FSRE involves on-farm testing of agricultural technologies to refine and improve innovations in line with farmer needs. This requires systematic analysis of which tech-
Technologies are worth testing and in what form. Unfortunately, most on-farm research programs are highly diversified and have a poorly directed research focus (Shaner et al., 1982). The agricultural triage technique was first developed by NERAD in 1984 as a means of overcoming some of these problems (Craig & Sukapong, 1987).

The project also succeeded in identifying and exploiting the potential of such farming techniques as the simultaneous production of fish and rice in rainfed paddies, the direct seeding of rice in rain-shadow areas, and control of disease in native chickens. Emphasis during the final year of the project was to document and transfer the most successful techniques throughout the Northeast. Promising methodologies included rapid rural appraisal, agro-ecosystems analysis, and computer mapping, among others.

NERAD used a participatory implementation approach to involve representatives from the major departmental, provincial, district and village levels, along with NEROAC employees. Project tactics included both top-down and bottom-up approaches. The idea was that guidance and technical support would flow downward, and that decision making would flow upward, allowing activities to integrate at the village cluster level; priorities would be decided there instead of higher up, as was traditional. This approach was deliberate, involving a number of external specialists (Ragland, 1987).

By late 1985, more serious attention began to be given to NERAD’s sustainability, defined as the continuation of a formalized Northeast adaptive research and development program within NEROAC and its participating entities following completion of USAID assistance. A joint Thai-USAID evaluation of the project further highlighted the need to give higher priority to continuation of a coordinated R&D program, and not just the production of NERAD’s outputs. One major outcome of these deliberations was the decision to choose one site in Roi Et province where promising technologies could be tested for suitability to the farms of the rainfed area (Amaritsut & Craig, 1987). This site could also serve as a “learning laboratory” for NEROAC’s continued adaptive R&D work, following the project.

The other outcome of the institutionalization deliberations in 1986 was to restructure the NERAD project during its final year, to give top attention to sustainability. In the NERAD workplan an explicit sustainability strategy was proposed and agreed upon. The new approach involved a series of ten workshops and seminars oriented to the dissemination and sustained use of three NERAD outputs: the most promising agricultural technologies, innovative R&D methods, and NEROAC’s emerging management information system for coordinating adaptive research and development, NERADICS (Hopkins & Craig, 1987; Hopkins, 1985).
The workshops and seminars, begun in early 1988, first targeted the end users of the NERAD output cluster in question. For example, the technology dissemination workshops focused on those research, extension and other agricultural specialists from the region with professional interests in the innovative technologies being discussed. Second, the workshops targeted the NEROAC staff and key political and technical stakeholders in other regional and university offices who would need to continue this type of dissemination activity following NERAD. For example, the head of the public information and training unit, until this time uninvolved in NERAD, became the team leader for the workshops. The NERAD technical assistance team members served as facilitators and resource personnel. The workshops had a performance orientation for one set of clients external to NEROAC in an attempt to provide a valued service or output. Concurrently, the workshops had a capacity-building function for permanent NEROAC staff and external cooperating agencies.

The NEROAC director, who was also the NERAD director, was fully behind this strategy, in part because he felt that these workshops and seminars represented one effective mechanism for carrying out his regional agricultural coordination role. As he stated on one occasion, "Overall my authority is limited, but it is possible for me to bring representatives from multiple levels and institutions together here at the center. This allows me to carry out my coordination role if I am effective in the use of their time and energy while they are here."

The director took a special interest in the opportunity provided by the Tha Phra center's information system as a means for continuing NERAD's adaptive research and development program in the region. In the project's early stages, a simple information system was developed to meet operational reporting needs. The system was driven primarily by researchers and the technical assistance team, rather than by users of information. The result by 1985 was data overload and information shortage. Data were not being organized into a program that made them useful in decision making; consequently data producers complained that their outputs were not being used by intended recipients (Pisone, 1988).

In 1986, the concept of a systematic information and coordination function (NERADICS) first emerged (Hopkins, 1988). Subsequently, it took on a much broader perspective as research consolidation and dissemination functions became more important, and as the center began to appreciate the important role of information in its emerging coordination function. The director wanted to develop NERADICS fully during the final year of NERAD, including staff development, equipment upgrading, and budget acquisition for future development and maintenance. Specifically, the director moved toward the development of a center-wide computer-based information system for use as a coor-
dinating mechanism for ensuring external responsiveness and internal efficiency. Concurrently, he wanted each NEROAC unit to develop its own internal information system compatible internally and linked to major external user groups.

There are several reasons why the director has looked to NERADICS as a major sustainable element of NERAD. First, he viewed information as central to the Tha Phra center's reoriented mission of coordinating Northeast agricultural and cooperatives development. He saw a major external demand from the central level, other regional organizations, and from the province and district levels for descriptive and programmatic information. Second, information technology was a highly visible and valued idea in the government and donor agencies. Therefore, he saw the opportunity for getting special and regular resources for funding this effort. Third, the center staff was interested in information technology for work related and professional development reasons, and thus was supportive; so there was a major internal demand for the new technology.

ANALYSIS OF NERAD SUSTAINABILITY ISSUES

The longitudinal description of the NERAD case presented above provides an excellent setting for understanding the dynamics of institutional sustainability as elaborated in the SCOPE framework.

What is the relative importance of proximate and distant environmental factors in the sustainability of the NERAD research and extension project?

The SCOPE framework hypothesizes that the conduciveness of the project's proximate and distant political, social, and economic environment is directly related to its sustainability. What actually happened in the NERAD case?

The dominant forces in NERAD's proximate environment during the project investment period were NEROAC and USAID. Both of these organizations had a strong and continuous influence on the project's actual sustainability. From a sustainability perspective, as distinct from an implementation performance one, the conduciveness of the proximate environment changed from ambiguous and unsupportive, during the early years of the project, to purposeful and highly supportive during the final two years. As the degree of support for sustainability changed, so did the project's prospects for sustainability.

With the exception of the NEROAC director (who was also the project director) other units in NEROAC were indifferent to or alienated from NERAD. Some officials felt that NERAD had too many resources and too much autonomy, and that they were not benefiting adequately from
the project. USAID, on the other hand, was primarily interested in assuring that the project "blueprint" was followed. Since sustainability was not explicitly dealt with in the design, the donor was silent on the issue. It is fair to conclude that the prospects for NERAD's sustainability were low, as late as 1985.

Then a turnaround occurred in the proximate environment, first in the donor agency but with the active support of the NERAD project director and team. The transition period for NERAD was 1985-86. There was substantial USAID staff turnover, including the NERAD project officer and the agriculture division chief. The new mission team took a positive stance toward NERAD. Project objectives were clarified and the philosophy seemed to shift from, How can we cut NERAD losses? to, How can we consolidate NERAD gains? (Schmidt, 1989). A new sustainability strategy was developed that fully involved other NEROAC units in the project and thus gained their support. As this happened, the prospects for sustainability increased markedly, as evidenced through new forms of support and cooperation.

In the NERAD case the dominant forces in the more distant environment were conducive to NEROAC's role as a planning and coordinating entity from the outset of NERAD. Politically, the ministry backed efforts that had the potential to attract long-term development support. NEROAC demonstrated its ability to serve as a hospitable home for innovative efforts like NERAD, so there was no hostility in the Ministry of Agriculture to NERAD's long-term sustainability objective. Neither the ministry nor Khon Kaen University saw the NERAD project as competition. Instead they saw it as an opportunity for mutual benefits. Financially, NEROAC's permanent role in the ministry as a regional coordination agency assisted it to put a claim on resources for recurrent cost financing of NERAD's FSRE program. In summary, the distant environment's conduciveness influenced the prospects for NERAD's sustainability, but not to the degree or intensity as the more proximate forces.

What type of project management strategy contributes to sustainability under environmental conditions that are internally complex and externally uncertain?

The SCOPE framework postulates a contingency relationship between institutional sustainability, the type of management strategy, and the characteristics of an organization's internal and external environment. Specifically, the framework hypothesizes that an adaptive strategy is most appropriate for sustainability under conditions of high internal complexity and external uncertainty. Since NERAD sustainability results are positive, an analysis of this hypothesis may provide some valuable insight into the relationship between these three important dimensions of development projects.
Thailand’s Northeast Rainfed Project

NFRAD was internally a highly complex project. Structurally it integrated many governmental departments, local government units, and farmers using a specialized FSRE approach. Technically the project worked in many different geographical sites with different innovations under a wide range of agro-ecological conditions. Managerially the project was responsible for producing three major clusters of outputs over an extended time period with staff of different technical specialties and nationalities.

NFRAD's environment was uncertain in some very key respects. First, at the outset of the project there was a lingering confusion about the appropriate role of NEROAC as either a research and development center for the Northeast or a coordination and planning arm of the ministry. Second, there was uncertainty about the real objectives of the project until at least 1985. Finally, the external demand structure for the project's outputs was largely unknown during the first three or four years of implementation.

To meet the increasing pressure for sustainability that arose over the course of the project, the NFRAD director and his management team gradually shifted from a mechanistic to an adaptive management strategy, especially during the final two years. They de-emphasized centralization, and stressed information gathering, from the external environment and horizontal communication among the NEROAC and other departments, through their integrated information system, NERADICS. The internal strategy of NFRAD was balanced between task performance and problem analysis, with performance having a slight edge. In the beginning of the project, problem analysis was internally focused, and toward the end it was more externally focused. The problem analysis approaches, including the annual planning workshops and agricultural triage, took account of and adapted to the internal and external environment. This happened through the use of proactive dissemination and marketing mechanisms to influence each of the key political and technical stakeholders associated with the project's several output clusters. Key elements of this strategy were the project director's close linkages with the ministry and the use of a participatory implementation approach to involve representatives from the eight major ministry departments, government officials from different levels, along with employees of NEROAC and NFRAD. Finally, performance improvement was greatly emphasized. Though the project began in the blueprint mode, it later became a process of continual adaptation within a flexible framework, and achieved a considerable consensus on objectives, strategies and means (see Brinkerhoff & Ingle, 1969). To a large extent, worker performance was appropriately rewarded or sanctioned.

This analysis supports the SCOPE hypothesis. It also begins to explain more precisely the nature of the relationship between a project's adaptive
management strategy and sustainability under conditions of internal complexity and external uncertainty, as follows.

The NERAD adaptive management strategy emerged with three predominant features—information scanning and reflection, efficient production of outputs, and active dissemination and marketing. These features appear to be synonymous with the three types of key sustainability capacity that a project needs to develop during its investment period if project outputs are to be sustained. Furthermore, each of these types of sustainability capacity appears to be causally related to one of the project output sustainability conditions or measures introduced earlier. These relationships can be clearly elucidated in the NERAD case. The information scanning and active reflection feature of NERAD's adaptive management strategy permitted the project to continuously monitor changes in the external and internal environment, and to adjust its internal production process in response. This feature, as well as the third one, is highly dependent on the development and nurturing of linkages between the project and its external environment. This feature can be thought of as a project's capacity for being responsive to changing environmental conditions and demands, which is directly related to the need to have project outputs continue to be valued by external stakeholders, the first sustainability condition.

Another major feature of NERAD's adaptive management strategy was the efficient production of project outputs. From the outset, the project developed high quality internal systems for planning and implementation. This feature is synonymous with the project's capacity for efficient and effective production of benefits. The capacity for production is directly related to the need to have project outputs continue to be produced through some organization and management mechanism, the second sustainability condition.

The final feature of NERAD's strategy was an active dissemination and marketing effort, concentrated in the final years of the project. This feature was one of several most responsible for the project's overall sustainability accomplishments (Schmidt, 1985). The dissemination and marketing effort can be viewed as a project's capacity for actively generating political support, which is directly related to the need to have project outputs continue to be provided recurrent resources, the third sustainability condition (Schram, 1981).5

What is the relationship between project implementation performance and project sustainability?

Project implementation refers to the productive mobilization and use of resources for the accomplishment of specific investment period objectives (Ingle, 1979). Implementation differs conceptually and operationally from project sustainability, which refers to the continued
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production of project initiated outputs that are sufficiently well-valued so that additional inputs are provided. It follows then that implementation and sustainability are separate but related project dimensions (Brinkerhoff, 1990). In this section we will examine the nature of the relationship between implementation and sustainability in the NERAD case.

NERAD's sustainability refers to a valuing of specific outputs (such as the FSRE program approach) by those in NEROAC, and throughout the agricultural community, who support the continued production of these outputs following the project. In 1981 NERAD had a detailed implementation performance strategy including a plan that appears to have served the project reasonably well. This strategy did not explicitly target the project's sustainability, e.g., it did not contain specific provisions for demonstrating NERAD's potential long-term value, and generating the necessary support for continuing its elements from essential stakeholders. It was not until midway through the project that a sustainability strategy emerged. This suggests that it is not enough to have a strategy targeted only to those activities and actors needed for successful implementation, as was done in the early stages of NERAD. For example, the inclusion of individual farmers in the participatory FSRE process is essential for generating appropriate technologies. But success of this kind is not enough to assure the sustainability of the FSRE program. The most important follow-up to these farm level achievements for sustainability is to gather support from the political environment, and the most effective way of doing this is to disseminate and market the implementation performance success to political players and technocrats.

The NERAD experience also suggests that successful implementation performance (which is aided by adequate internal resources and good internal management, for producing high-quality outputs during the life of the project) is a necessary, but not a sufficient condition for sustainability. NERAD produced a variety of high quality outputs in the early years, but did a poor job of marketing them to key external supporters until the final few years of the project. Unless the value of outputs becomes recognized by powerful actors with influence over recurrent resources, then the probability of sustainability will remain low.

The NERAD experience strongly argues for the position that sustainability should be viewed as an additive dimension to implementation performance with inherent potential for complementarity and conflict. NERAD's project implementation performance appeared successful to NERAD project staff and to beneficiary groups in the project's pilot areas. On the other hand, these same implementation tactics set events in motion that began to alienate other, less involved parties, especially personnel in NEROAC's other units. Seen from the vantage point of
these other units, the project operated as a self-contained entity. It constructed a new building, established its own steering committee, hired many of its own staff, purchased equipment including microcomputers, developed new internal operations and external linkages, and began its own publication series. To get funds released quickly, which entails time and specialized knowledge of donor agency procedures, technical assistance staff members, rather than permanent NEROAC employees, were assigned responsibility.

NERAD's activities thus appeared "artificial" to many bystanders in NEROAC, who felt they did not fit with their center's other endeavors. And although considerable effort was devoted to getting broad participation in such processes as annual planning meetings or regular staff meetings, almost no attention was given to assuring that NEROAC's permanent operational staff felt involved in the project. The NERAD budget, for example, did not include resources for the other NEROAC units that could facilitate the gradual integration of project activities into the Tha Phra center over the life of the project. Resentment of the NERAD project resulted.

During implementation, there is a trade-off between quick performance through bypass structures and involvement and sharing of ownership that can lead to more active understanding, commitment and support (Honadle & VanSant, 1985). While building special project units can enhance near-term performance, the drawback is that doing so may create tensions and alienate key people, to the extent that they will deny support. In addition, no capacity will be left behind. But the key issue is ensuring that negative forces and attitudes are not initiated in the host organization. Thus, sustainability depends on the structure of a project's implementation process, which actors are involved, and which ones perceive themselves as benefiting or suffering in the early stages of that implementation.

When new systems and procedures are introduced to support projects such as NERAD, and when the project is their only rationale, the procedures are likely to grind to a halt when the project ends. If these same procedures are built into ongoing operations, they are not seen as artificial behaviors. They can then modify existing practices, accommodating new needs. Thus they may be sustained. Although neglected at the outset of NERAD, this kind of inclusion became a central goal of NERAD in its final phase.

As an additive dimension of a project, sustainability should have its own objectives and strategy, and both of these should be fully integrated into the objectives and strategy for project implementation performance. A key feature of this strategy should be an appropriate plan for enhancing the three types of sustainability capacity during the project investment period. An initial set of project sustainability guidelines
suggests that a project's sustainability objectives and strategy should, at minimum, include a combination of policy, structural, and management variables (Halpern, Ingle & Brinkerhoff, 1988). This framework was applied to NERAD with promising results.

Finally, the relationship between implementation performance and sustainability also seems to be influenced by a project's evolution. In NERAD, sustainability tended to receive more attention as the project moved toward the end of its life cycle. In design and early implementation, there were pressures for obtaining approvals and for demonstrating early efficiency and success. During the latter phases of the project, the pressures changed and team members had time to address the issue of what would remain of value following the project investment period. The NERAD case demonstrates that a "window of opportunity", for considering and dealing with sustainability issues, is open at this juncture. Moreover, if proper analysis is undertaken, some changes can be taken in the project, even at a seemingly late date, to greatly improve sustainability.

It is premature to judge the ultimate sustainability of NERAD. Many questions remain. Will NEROAC continue to produce valued outputs initiated by the NERAD-generated FSRE program? Will NEROAC be able to retain its organizational and management processes and staff resources necessary for high quality and efficient production? Will it be possible for NEROAC to have a successful track record of valid transactions, with new political stakeholders, that can be transformed into recurrent cost support? Perhaps the most we can say is, "NERAD has set the basis for high potential payoffs for millions of rainfed farmers in the Northeast, but these payoffs will unfold long after the project assistance completion date and through other delivery mechanisms. At this stage, we can conclude that the leading indicators of probable success are present" (Schmidt, 1989).

NOTES

The authors recognize the assistance of Janet P. Stauss in editing, and acting as liaison for the writing team.

1. One of the authors conducted an institution-building evaluation of NEROAC in 1972. Later he carried out an assessment of project sustainability one year prior to phase-out of donor assistance. Another author worked on implementation systems during the early years of the project (Schmidt, 1984) and later examined sustainability following project termination (Schmidt, 1989). Information for the case study also draws on Utai Pisone's 20 years of experience as director of NEROAC, and numerous evaluation reports.

2. As USAID's project officer for NERAD during the first five years of the project wrote in his end of tour report, "The NERAD project has been described as having multiple personalities because of the different focuses and supposed
confusion over purpose, as exhibiting schizophrenic tendencies, as a multiple-headed hydra because of the nine implementing agencies. There is some validity in these criticisms. Since project start-up, it was blatantly obvious that the various agencies were not sharing the same perspective. But what was not realized at the time was that many of these perspectives were incompatible with each other and with the Project Management Center's interpretation of project purpose."

3. As explained by one of its inventors, the triage technique “attempts to improve objectivity and introduce multi-disciplinary analysis into the technology screening process by developing a step by step, interdisciplinary analysis procedure for rating the performance of the technologies tested, based on the local agro-ecological and socio-economic conditions in the target site. It provides a framework for assessing the trade-offs among bio-physical and socio-economic parameters, thus allowing the technologies tested in an on-farm program to be classified” (Craig & Pisone, 1987).

4. The Roi Et learning laboratory raises some important sustainability issues. NEROAC staff had wanted to initiate this type of province-based site for some time, and had the commitment from key actors to do so. However, no action was possible until NERAD resources were provided. The question now is whether or not the district level laboratory will be continued after project resources terminate in 1989. NEROAC staff members indicated that they would not be able to get funding for this type of activity in the regular budget, so did not try. It is doubtful that special governmental funds will be available, so the sustainability of this laboratory in its current configuration is highly unlikely, unless NEROAC can find some other project to incorporate the idea and the cost.

5. For purposes of this analysis, sustainability does not differentiate source of recurrent resource funding. Sustainability does not mean total independence from continued donor funding through other projects or special arrangements, nor does it mean total self-sufficiency. In the Thailand context, almost all development expenditures are funded through external assistance. The issue is not one of attempting to develop self-reliance prematurely, causing complete failure, but rather, assuring judicious and efficient management of in-country and donor funding mixtures, so that valued benefit production can continue, consistent with development objectives.

6. As the factors contributing to successful performance and sustainability are different, so are those for sustainability and replication or expansion (DPMC et al., 1983). Expanding the NERAD output cluster at new decentralized adaptive research sites after project completion is very different from sustaining operations at the same site. This relationship is important for the development community, and there is no current literature on it, making it a good candidate for future research.
Sustainable Credit for Rural Development: Learning from Indonesia

Melissa C. Brinkerhoff

Few rural development endeavors confront the issues and challenges of sustainability more directly than the provision of credit to agricultural and rural producers. Agriculture lending, particularly to small farmers, has a nearly three-decade history of pairing donor agencies with developing country governments to promote economic development by alleviating credit constraints. Despite the relatively large amounts of credit directed toward rural producers, results have often been disappointing (see Donald, 1976; Von Pischke et al., 1983; Adams et al., 1984).

Provision of agricultural credit has been pursued in the context of both production and equity objectives. The strategy generally employed is to increase the total supply and reduce the cost. By making cheap credit widely available to the rural poor it was thought that production would be increased, with the added benefit of improving the income distribution of the rural poor. Credit policies and programs have been based on a set of "heroic" assumptions about small rural producers and their access to financial services. These include, for example, that small producers must be induced to adopt agricultural innovations by offers of cheap credit; that they have no savings capacity; and that with limited access to commercial credit they must rely on "usurious" informal sources, such as money lenders or pawnbrokers (Adams, 1989; Adams et al., 1984; Meyer, 1983; Snodgrass & Patten, 1989).¹

The lending landscape created by acting on these assumptions features convoluted regulations, special funds, complex rediscounting and reserve arrangements, loan guarantees, and other incentives to encourage
lenders to increase credit flows to the rural poor. Special programs and institutions, each with their own objectives, targeted particular groups to get credit, in what amount, and for which purpose (see Adams & Vogel, 1986). Financial markets have become fragmented, rather than integrated, as new entities, such as agricultural credit agencies, development banks, and cooperatives were created to disburse and monitor these supervised credit programs. With such a narrow focus on credit disbursement, many lenders either failed to, or were even prevented from providing deposit and savings services to rural producers.

Besides dysfunctional fragmentation, rural financial markets exhibit high degrees of inefficiency, ineffectiveness, and distortion. Populating the credit landscape are institutions with programs plagued by loan recovery problems, outright failure to repay, chronic dependency on subsidies and external support, and excessive transactions costs for both the institutions and clients. These institutions remain viable only due to continuous infusions of external resources. Further, they rarely reach their intended small farmer beneficiaries, and fail to achieve either their production goals, or any substantial increase in rural income (Cuevas, 1988; Graham & Cuevas, 1984; Meyer & Nagaranjan, 1988; Gonzalez-Vega, 1983).

Despite the history of failure, we cannot ignore the potential contribution that effective financial markets and financial institutions can make to economic development by stimulating savings and facilitating intermediation between borrowers and savers. There is a strong development rationale for public intervention to build up the formal (and informal) financial sector and extend services to groups that are not yet being adequately served (McKinnon, 1973; Fry, 1988; Snodgrass & Patten, 1989). However, to be of ongoing benefit to developing countries, these institutions must prove sustainable over the long term.

The SCOPE framework elaborated in Chapter 3 points our attention to several factors that are reflected with particular clarity in rural credit. Because the “good” that credit institutions deal with is monetized, relatively precise calculations of the cost and value of the benefits provided can be made, relationships between benefits and incentives can be quantified, and measures for sustainability developed. SCOPE highlights stakeholders and the value they attach to institutional outputs, factors that play key roles in rural credit. The framework also focuses attention on the complex and multiple exchanges between institutions and actors in the environment.

This chapter examines the credit component of the USAID-funded Provincial Area Development Program (PDP) in Indonesia using the SCOPE concepts. Credit systems are reviewed in three provinces: Central Java, South Kalimantan, and West Nusa Tenggara. The case study focuses on the development of capacity and performance of core insti-
tutions involved in the various PDP credit systems; the impact of the provincial credit systems on borrowers and other beneficiaries; and the credit systems' viability and prospects for sustainability. The study seeks to convey a flavor of the complex interactions among institutional actors that played an important role in shaping the development of the credit system.

THE PROVINCIAL AREA DEVELOPMENT PROGRAM, CREDIT COMPONENT

Indonesia's PDP was implemented over a ten-year period, beginning in 1978 in two provinces, one of which was Central Java. It expanded to six, including South Kalimantan, in 1979, and encompassed eight by 1980, reaching West Nusa Tenggara in that year. The project design provided resources and support for the planning, implementation, monitoring, and evaluation of small subprojects, to increase the incomes of the rural poor by decentralizing development efforts to the provincial level and below. In the eight provinces, PDP undertook a wide range of sectoral activities, including agricultural food crops, estate crops, livestock, fisheries, village industry and handicrafts, manpower training, social welfare, and cooperative development.

PDP's objectives included improving (1) the capability of local governments to undertake rural development activities that improve the productive capacity of the rural poor; (2) the capability of the central government to support local governments in planning, implementing, and evaluating activities that improve the productive capacity of the rural poor; and (3) the incomes of the rural poor within the project areas through implementing small subproject activities. These objectives shifted over time, especially after 1982. They gradually moved away from experimental, direct, beneficiary-oriented subprojects, which were expected to be taken up by local government agencies, toward the development of institutional capability and introduction of planning and monitoring systems.

The project worked at the central level with the national planning agency, and at the provincial level, beginning in 1980, with decentralized regional planning boards (BAPPEDAs). PDP also worked through local sectoral agencies (dinas) at the provincial level and at the rural district (kabupaten) and sub-district (kecamatan) levels with local government entities.

From the outset, participating provinces were required to make some arrangement for the provision of credit in support of the various sectoral development efforts. How credit was structured and provided, varied considerably from province to province. Initially, the dinases handled the details of the credit program through individual subprojects, but
this proved to be a disaster. The local sectoral agencies had little difficulty in supplying credit as input to their production efforts, but had little capacity to manage repayment.

Demand for credit in PDP came from the sectoral agencies to support their production efforts in the many subprojects that were being sponsored. Stimulating commodity production was the main focus of effort, and getting funds out to producers in support of the subprojects was the major emphasis of credit. Since lending is only one element of the activities a viable credit system needs to engage in, financial services delivery to beneficiaries began to founder. Repayment, covering operating costs, and savings mobilization were all neglected.

One notable exception to the pattern of failure was the subdistrict credit agency (badan kredit kecamatan), or BKK, in Central Java province, supervised by the Regional Development Bank (BPD) and supported by PDP. Here the emphasis was on institutional development over strict credit delivery. The success of the BPD's Central Java BKK operations during the early years of PDP attracted considerable attention (see Goldmark & Rosengard, 1983), and led to emulation in other provinces. As a result, the BPD was assigned the responsibility for providing PDP credit, including credit management, training and supervision, through the BKKs' networks of local offices. In conformity with the PDP objective of targeting the rural poor, credit operations were directed at small enterprises that were not served by formal lending institutions.

The three provincial BKK systems reviewed subsequently, illustrate PDP efforts directed at creating and maintaining viable institutions capable of responding to the demand for financial services in rural Indonesia. The three credit systems vary with respect to size, scope of operations, facilities, staffing, management, and leadership. In part, this variation reflects different strategies being pursued in the delivery of financial services, but it is also a function of the different levels of development of these systems.

The Central Java BKK

In 1970, the BKK system was created as a project of the Central Java provincial government, which capitalized each individual local unit. By 1979, about one-third of the units had ceased to exist or were operating at such low levels as to make them non-viable. PDP provided support to rehabilitate the BKK. Interventions began in 65 units in the five rural subdistricts designated as PDP’s target area. The institution-building experiment consisted of: (1) recruitment and training or retraining of staff; (2) development of accounting, supervision and auditing, reporting and classification procedures for the system as a whole; and (3) increased capitalization on a graduating scale based upon unit classification.
The intent was to deal with immediate performance problems and build future capacity as well. Within the first three years of the experiment, substantial progress was made in improving the operations of targeted units. The success attracted the attention of the central government, which in 1981 provided a loan of $4.7 million (Rp. 3 billion) to extend the rehabilitation efforts through the remainder of the province's subdistricts.

Size and Scope of Operations

The Central Java BKK has units in 497 subdistricts, and operates over 3,000 mobile posts that follow village market day schedules. It serves around half a million clients, and continues to grow. The BKK is primarily a lending institution, but targets savings mobilization as well. Compulsory savings is a loan requirement designed to inculcate new behaviors and to increase available loan capital. Following a change in regulations, the BKK now offers savings accounts to non-borrowers and is aggressively pursuing this new market. Average loan size is $36, with the borrowing period averaging 12 weeks.

Facilities and Staff

For the first ten years of its existence, the BKK operated out of borrowed rooms in the kecamatan government complex with borrowed or nonexistent equipment and material. Units were staffed with local government employees. The PDP institution-building intervention led to changes. The project established a revolving fund, managed by the BPD, that BKK units meeting profitability criteria could borrow from, for equipment. Permanent offices were financed the same way, using funds from the provincial development budget. This practice limited public subsidies and put government resource allocation on a profitability basis.

In the mid-1980s, the BKK shifted its staff from civil servant status to employees of the system itself, which allowed the introduction of performance-based pay, profit-sharing incentives, and more flexibility to hire and fire. Each unit has three core staff, a manager, cashier, and bookkeeper; hiring additional staff depends on service demand and profitability.

Leadership and Management

Key actors providing leadership for the BKK have been the director of the BPD, and an assistant to the provincial government secretary. They maintained linkages with the governor's office and the BAPPEDA, lobbying and negotiating for policies favorable to the BKK. The system also has a supervisory board that provides both leadership and oversight, and reports to the district head. The BKK's official designation as a subdistrict institution has given the subdistrict head a monitoring role,
which has had a positive effect on performance. In addition, village chiefs serve as guarantors of the reliability of individual borrowers and as information conduits regarding credit matters.

The BKK in South Kalimantan

The BKK in South Kalimantan is not only a direct product of PDP credit interventions in the province, but as its name implies, is also a conscious replica of the Central Java system. Established in 1985, the South Kalimantan BKK has deliberately limited its services to the provision of small, short-term loans. The BKK serves 28 subdistricts of the 106 in the province. Loan packages in South Kalimantan tend to be larger and about twice as long in duration as those in Central Java. A decision not to offer a savings program at the outset was based on considerations for the difficulty in training new staff to perform complex bookkeeping functions for two separate accounts simultaneously. The BPD has stated that it is making plans for the addition of a compulsory savings program.

Facilities for the BKK, including equipment and motorcycles, were financed by the district with PDP funds, which are not subject to repayment by the system. PDP provided another subsidy in the form of two years' worth of staff and operating costs for each BKK unit. Staff are employees of the credit agency, with three per unit.

As in Central Java, the BPD director has played a lead role in maintaining close contact with the provincial development planning board and the province governor on BKK matters. The system does not have a high-level supervisory board, though it does involve the subdistrict head in performance monitoring.

The Lumbung Kredit Pedesaan in West Nusa Tenggara

In West Nusa Tenggara, the period 1980–86 saw PDP experimentation with lending through precooperatives (village training centers) managed by the provincial development planning board, later through mobile banks provided by the BPD, with a simultaneous cooperatives lending scheme, in which the BAPPEDA, the dinases, and the BPD all played a role. These experiments led to failure due to a variety of classic credit problems: loans to groups with no prior identity, loans for economically nonviable enterprises, inadequate lending and collection procedures, and poor interagency collaboration.

Despite resistance by the BAPPEDA, PDP established a new credit system in West Nusa Tenggara in 1986, the Lumbung Kredit Pedesaan (LKP), to turn the credit situation around. The LKP was the last of the PDP credit systems to be established. The system evolved toward the
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Central Java BKK model, kecamatan-based with mobile units for village outreach, although the LKP is conceived as more strongly linked to village locations. Average loan duration is 12 weeks, the average amount, just under $40. LKP loans include compulsory savings. A unique feature of the LKP is that in some locations, the system has been able to mobilize voluntary savings both from active borrowers (in excess of the compulsory requirements) and from nonborrowers. This is impressive since savings deposits do not bear interest.

LKP units finance rental of office space through profits, but PDP has given them equipment and motorcycles, and provided a two-year salary and operating expense subsidy, as in South Kalimantan. LKP units' core staff add a messenger and night guard, bringing the total staff to five. Staff are not civil servants, and village chiefs have a say in hiring. Leadership comes from the regional development bank, the provincial development planning board, kabupaten officials, and village chiefs. However, the subdistrict head does not have a role.

SUCCESS AND SUSTAINABILITY: COMPATIBILITY OR CONFLICT?

PDP's final evaluation concludes that, "the credit program was a stellar example of the manner in which a PDP initiative, once adequately tested, was recognized as worthy and was readily transferred, modified and adopted in other provinces" (Berg et al., 1989:47). Indeed, the revitalization of the BKK in Central Java, and the later establishment of new credit systems in South Kalimantan and West Nusa Tenggara, demonstrate how a flexible and experimental approach to design and implementation can lead to success (see Brinkerhoff & Ingle, 1989).

However, what is success for the credit component in terms of sustainability? As noted earlier, the objectives and the institutional approach to the provision of credit under PDP underwent a process of transition and evolution. At the outset, PDP implementors seldom saw the provision of credit as an end in itself, but rather as a necessary support element to the continued achievement of results by the sectoral agency commodity subprojects to which the provision of credit was subordinated. This approach proved to be nonviable financially, leading to the experimentation with the BKK model, which reversed the emphasis of the credit component, highlighting the viability of the credit institution rather than the outcomes of the sectoral subprojects. This amounted to a change in objectives.

By the late 1980s, the imminent termination of PDP funding provoked considerable discussion of a "break-even point" for both the individual BKK/LKP units and the provincial systems. Concern for institutional mechanisms that could guarantee financial viability and sustainability
accelerated the move away from the rural producers in the sectoral subprojects, the original priority beneficiaries (who were high risk borrowers), to lower risk client groups. For example, the South Kalimantan BKK retreated from the seasonal agricultural loans that were once a major percentage of its portfolio, due to high levels of arrears and turnover. This trend left key stakeholders with interests in PE development objectives dissatisfied. They argued that the shift to institutional approach to credit abandoned the very sectoral agency commodity programs that credit was originally intended to support.

This situation highlights a critical issue for sustainability. The SCOPE definition of sustainability refers to the ongoing production of goods and services sufficiently valued such that inputs continue to be provided. The “technology” of credit provision specifies what is needed to maintain this input-output relationship without continuous injections of outside resources; for example, lending criteria that limit risk, savings mobilization, appropriate interest rates and rate spreads between loans and other accounts, administrative and supervisory cost containment, and on (e.g. Adams et al., 1984; Adams & Vogel, 1986). The issue arises when the question is asked, who values the goods and services and where are their interests? It poses problems for sustainability when the answer reveals conflicts between the valuation of the outputs and technical requirements for their sustained production.

Indonesian government sectoral agencies valued the credit program as supports to the experimental commodity production activities, which involved greater risks for lending. As the BKK/LKP systems made changes to increase financial viability, and ultimate sustainability, the emphasis was on short term loans to low risk clients, such as traders and food processors, and raised interest rates in some cases. The sectoral agencies dealing with food crops, livestock, fisheries, and industry complained that their clients were not qualifying for loans and demanded preferential treatment.

Thus important stakeholders in the credit systems did not value the modified services the BKK/LKP was providing. The changes increase prospects for the systems' financial viability, but in terms of the SCOPE definition, this lowered the prospects for sustainability. BKK/LKP response was to argue that the shift away from the sector program would only be temporary. Once the credit systems were firmly established they could afford to carry a more risky portfolio and serve more of the clients of the sectoral agencies.

The stress on institutional development objectives for the credit component, besides changing the BKK/LKP product mix, introduced a new set of actors. The BPD became a major stakeholder and to some extent displaced the sectoral agencies and BAPPEDAs as supporters of the program. The BKK/LKP systems are seen by some local government
actors as a kind of institutional "imperialism" on the part of the BPD. Increasing emphasis on the expansion of financial services to include compulsory and voluntary savings is taken as further evidence that institutional viability has come to replace the original objectives of credit delivery.

The PDP credit component case illustrates a situation where development and sustainability objectives appear to be in conflict. The institutional approach to the provision of credit by building up the BKK/LKP pursued three objectives:

- guarantee access to credit for the rural poor, who were identified as the PDP target group;
- cover the operations and management costs of the BKK/LKP systems and their individual units;
- provide for measured growth of services and of the system to meet future needs and demands.

The first of these is a development aim, the other two relate more to the ongoing viability of the credit institutions. The actors involved had differing priorities among the objectives; USAID, the BAPPEDAs, the dinases, provincial governors, the BPD, and rural residents all had various preferences, interests, plus differential ability to make theirs prevail. To a large extent, the institutional sustainability targets conflicted with the development objective.

For example, one of the factors contributing to the failure of the earlier PDP credit schemes resulted from pursuing the development objective of targeting loans to groups participating in sectoral agency subprojects. Preferential treatment of a class of borrowers because of their involvement in a subproject led to misinterpretation of borrower obligations and high default rates. Without loan repayment, the credit agencies could not remain viable lenders.

Considering the time dimension heightens the potential for goal conflicts. What leads to financial viability in the short term, may inhibit achievement of sustainability and development objectives in the long term. For example, Dukesbury (1988) suggests that the Central Java BKK's success may be attributed in large part to its almost exclusive concentration on twelve-week loans to small traders. The BKK's record of high capital utilization, quick turnover, low default rates, and moderate increases in average loan size led the LKP to impose a similar restriction. Immediate institutional viability was enhanced, and it appears that the small entrepreneur market is far from saturated. However, over the long term, failure to expand into other sectors deprives those sectors of needed financial services and exposes the BKK/LKP to the potential danger of excessive reliance on undiversified portfolios.
In addition, all of the BKK/LKP systems have been and continue to be subsidized; for example, the BPD has undertaken most of the supervision of the system units. This and other subsidies have promoted short-term viability, but it remains difficult to determine how and when they may cease without damaging the systems. The Central Java BKK is in the best position, having fewer subsidies to start with and better possibilities for expansion. Without steady growth in the South Kalimantan and West Nusa Tenggara systems, erosion of performance is a risk. Eliminating subsidies and maintaining viability is likely to be a function of attaining, and then surpassing, a minimum size level.

CONCLUSIONS

USAID's final evaluation of PDP (Berg et al., 1989) indicates that an effective credit delivery system has been created under the project, but as Dukesbury notes (1988) it is uncertain whether the BKK/LKP can become institutionalized successfully in other Indonesian provinces beyond Central Java following the termination of outside funding. The systems in South Kalimantan and West Nusa Tenggara are still fragile. Thus BKK/LKP's long-term sustainability is open to question as the systems seek to expand in the future. The chapter's discussion detailed PDP's success in introducing, testing, and modifying institutional innovation in credit provision at the village level. The Indonesian experience shows that a decentralized, flexible, consciously experimental approach to discovering what works is particularly well suited to local institutional development (see Uphoff, 1986). Further, the case exemplifies the positive interaction between performance gains and stakeholder support for further investment; it was the BKK's visible, early success in demonstrating viability that led to decisions to pursue system development, both in other Central Java districts and in other provinces.

The SCOPE model's definition of sustainability highlighted a conflict between the development objectives of PDP's credit component and the requirements for institutional viability and sustainability. Reaching the rural poor with credit is not a goal that is achievable without directly confronting the incentive structures facing lending institutions, borrower groups, and other actors. Sociopolitical considerations are central to these incentive structures. Developing country policymakers frequently subordinate the provision of financial services to political priorities by loan targeting, supporting unprofitable enterprises, or subsidizing interest rates. These factors interact with the technical aspects of rural financial markets to profoundly affect prospects for both institutional and development sustainability. The Indonesia case clearly illustrates these interactions, confirming experiences from other countries (cf., for example, Pulley, 1989).
NOTES

1. Numerous studies have demonstrated that interest rates charged by informal lenders, while appearing to be high, in fact reflect the true costs and risks associated with lending to the borrowers they service. See Adams (1989).

2. The case discussion is based on information from several main sources. USAID documents on PDP were used, especially two evaluation reports (Goldmark & Rosengard, 1983; Berg et al., 1989). The case also draws heavily on a sustainability study of PDP's credit activities (Dukesbury, 1988). Any errors and the interpretations presented are the sole responsibility of the author.
When investigating the problems of sustainable development, researchers often attribute the root cause to the design and early implementation steps of a development interest. Problems frequently cited, for example, include: (1) the lack of political commitment to the goals of the investment, (2) inadequate or inappropriate program strategies, (3) ineffective management systems, and (4) the absence of important human resources. In response, some professionals advocate process-oriented, organization development activities to guide the design and start-up of development efforts. The purpose of this chapter is to explore how the use of such an approach, called action-planning, can assist in addressing issues related to sustainability at the start-up stage of a new program or project. To do this, we look at two applications of action planning in Ghana and Guatemala. Guiding this analysis is the SCOPE framework presented in Chapter 3.

**ACTION-PLANNING**

Action-planning is an approach grounded in the field of organization development that uses participatory planning techniques for guiding institutional change and development. Action-planning programs consist of a sequence of structured meetings and workshops in which individuals and organizations can constructively contribute to, and develop ownership for, the planning and implementation of development strategies. These programs are designed and conducted with the assistance of a
facilitator, whose role is to guide the process and ensure that the knowledge and experience of the participants is shared openly and is used to form the basis of problem-solving, and the creation of implementation plans.

Five important characteristics of action-planning are that it: (1) integrates consideration of management and technical dimensions of a development objective, (2) focuses on addressing real world problems and opportunities and developing planning frameworks to guide future action, (3) is tailored to address the needs of the particular stage of the development effort, (4) emphasizes teaching skills and developing sustainable management and technical capacity within the participating institutions, and (5) is most effective when used iteratively over a period of years.

Action-planning is actually one of many names given similar applications of organization development theory to international development efforts. Indeed, in addition to action-planning (Silverman et al., 1986), this approach has also been referred to as: action-training and research (Gardner, 1974), action-training (Kerrigan & Luke, 1987; Jones & Clyma, 1986; Countryman, 1988), structured-flexibility (Brinkerhoff & Ingle, 1989), capacity building (Honadle & Hannah, 1982), and team planning (Kettering & Levine, 1986). While not all these terms denote efforts that correspond exactly to the action-planning approach outlined above, most come close.

The two action-planning programs presented in this chapter involved workshops to support the design of a project to promote the development of the local consulting industry in Ghana, and to support the implementation of a project involving a network of institutions in strengthening private sector development in Guatemala. In each case, the SCOPE framework is used to analyze the major factors that have an effect on sustainability, and how the action-planning intervention might have affected them. Consistent with earlier chapters, sustainability is defined as the continuation of benefits and the capacity of the organizations involved to continue to grow and change in response to new needs and circumstances. This definition looks beyond the sustainability of either a project’s activities or of the specific organizations. The key areas from the SCOPE framework used in this analysis are:

1. Strengthening External Support—that is, the organization’s relationship to the economic and political environment, its economic sustainability, and the degree of political support it enjoys; and

2. Strengthening Internal Capacity and Fit—that is, the capacity of the organization to carry out its mission, including its capacity to learn and be able to adapt to changes, the strength of its human resources, its system of internal incentives, and the fit of its strategy, structure and technology to the environment.
DEVELOPING LOCAL CONSULTING CAPACITY IN GHANA

In 1988 and 1989, an action-planning program was carried out in Ghana to assist in the development of the local consulting industry. This effort was part of a larger program of assistance provided to a total of seven different African countries (Congo, Ghana, Ivory Coast, Madagascar, Mauritius, Senegal, and Tanzania). It was initiated by the World Bank working with regional organizations of African consultants, and funded by a combination of the World Bank, the United Nations Development Programme (UNDP), the Dutch government, and the African Development Bank.

The overall purpose of the program was catalytic: to mobilize broad-based support for an integrated, comprehensive, and systematic approach to establishing sustainable local consulting capacity. The program employed a multi-stage process, designed using the concepts of action-planning, to assist consultants and governments in setting up an effective and lasting local consulting industry. Key outputs of the process were to be: the development of a medium-term strategy for capacity-building of local consultants and the identification of region-wide issues that would need to be addressed on a supranational level.

Although this specific effort was new, in several of the countries (Ghana, Madagascar, and Mauritius) local consultants had previously attempted to strengthen their industry by developing consultants' associations. These either did not get off the ground (Ghana), or ended up being ineffective (Madagascar and Mauritius). Two problems hindering success were: (1) a critical mass of potential members were not attracted to associations whose objectives and programs were established by a small number of organizers without the creation of a broader consensus, and (2) potential members were commercially in competition with one another and therefore wary of collaboration.

The first step in the action-planning program was the implementation of two regional workshops attended by representatives of pan-African consultants' associations and of several multilateral and bilateral donor agencies. The purpose of these meetings was to better define needs and plan for how the Africa-wide program would be carried out. Following that, a local steering committee was established in each of the seven selected countries, composed of members of the consulting industry, government, and donors. The role of the committee was to organize and guide the action-planning program in that country.

An initial three to five day workshop was held in each country, attended by approximately 40 local consultants and several representatives of private and public sector clients. In addition, representatives of donor agencies participated as resource persons to the group. With the guidance of facilitators, workshop participants diagnosed the problems they
were facing and the current strengths of the industry, and prepared an outline of a strategy and action plan for developing the consulting industry. Two external consultants, working with two local facilitators, managed the workshop.

The steering committee selected several local consultants to further develop elements of the strategy and plan, after the workshop. Once that was complete, a second, briefer, workshop was held (approximately four months after the first) to review the finished plan and to initiate the new consultants' association. As of October 1989, all plans had been completed and reviewed in each of the seven countries. A second regional workshop was then held in Ivory Coast in November 1989, to identify and address implications for donors and regional organizations.

The Major Issues Affecting Sustainability and How They Were Addressed

Developing External Support

In Ghana, substantial external support for strengthening the local consulting industry existed prior to the workshop. The government was already considering changes in procurement regulations that were intended to increase the use of Ghanaian consultants. The UNDP was working with the government to design a $700,000 project to support the development of the industry, with a large share of that funding going to support two university-based consulting groups.

The action-planning program took advantage of the existing climate of support and helped to ensure that it was directed toward supporting the consultants' action plan. It did this in several ways. First of all, the steering committee itself was a forum for bringing together representatives of consultants, the government, and donors (including the UNDP official involved in the new project). Through their discussions prior to the workshop, they agreed to a number of key points that would help link government and donor support to the action plan. They agreed that:

1. The outline plan produced at the workshop would guide the implementation planning for the proposed UNDP financed project. This decision firmly linked the new project with the needs and strategies to be identified by the consultants in the workshop.

2. The focus of the UNDP project would be expanded, giving greater emphasis on the development of private sector consulting. Much of the consulting work in Ghana is conducted by private consultants, and these consultants were to be well represented in the action-planning program. The UNDP and the Government of Ghana agreed that the project would provide substantial
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support to private as well as public sector consultants, guided again by the analysis and plans arising from the workshop.

Second, the action-planning workshop played a key role in creating other strong linkages between the consultants and their environment. A senior ministry official who opened the workshop, spoke about the government's current proposals to change the regulations governing the use of consultants. At the workshop closing, the Permanent Secretary for Civil Service listened to a summary of the participants' plans to establish a consultants' association that would, among other things, formally interact with government and donors. He then invited representatives of the association to review and provide direct input to the proposed government regulations.

Another important link to the government was made by the full participation in the workshop of several government officials; among them was the person responsible for managing external financing of development investments. Their participation in, and explicit support for the strategies developed at the workshop meant that there would be well informed support for the consultants' goals and program within the government.

While helping to strengthen the consultants' relationship with government and donors, the participative structure of the action planning program also contributed to building an association that could be independent and self-sustaining. During the workshop discussions, the consultants argued that they should not become dependent on outside financing, and, to support a strategy of self-sufficiency, they publicly pledged funds to initiate the association. While it appeared likely that some UNDP funds would be available on a limited basis to support their program, the consultants made a long-term commitment to financially support the work of the association themselves.

**Strengthening Internal Capacity and Fit**

During the workshop, participants defined a range of strategies they wanted to implement to strengthen the consulting industry in Ghana. The establishment of a strong association to carry out the improvements was a key part of their overall strategy. There were two contributions made by the action-planning program to the development of an effective and sustainable association.

First, the program ensured that a wide range of consultants were included in the initiation of the association. Even before the action-planning program, a small group of Ghanaian consultants had been planning to initiate an association. While some members of this group were anxious to go ahead and establish the association right away, they agreed to participate in the workshop and thereby allow the association
to be developed through the efforts of the workshop participants. By the end of the workshop, the participants unanimously supported the establishment of a consultants' association, thereby giving it a strong mandate for action. Indeed, the perceived legitimacy of the association was such that the key external stakeholders attending the workshop immediately began treating it as an official body, representative of Ghanaian consultants.

Second, participants in the workshop established an action agenda for the new association in six areas: (1) marketing, (2) training of members, (3) establishment of a resource center, (4) creation of a consultants registry, (5) influencing government policy, and (6) developing an association constitution and code of professional ethics. Within four months after the initiating workshop, the constitution and code of ethics were written and ratified and elements of other activities begun. The start-up process was quick and efficient, an experience not common to many development efforts.

Finally, by establishing the formal association and its agenda through the participatory workshop process, much of the competition among consultants was avoided. The consultants were able to identify areas of common interest and need, and develop programs that transcended their competitive differences.

PRIVATE ENTERPRISE DEVELOPMENT IN GUATEMALA

The Government of Guatemala has various reasons for strengthening its private sector and supporting the development of small and medium scale businesses. These include: generating increased foreign exchange to pay for needed imports and repay existing debt; diversifying the country's exports to include a range of nontraditional commodities; and expanding the number of individuals and businesses involved in production activities as a way of diversifying the private sector.

The Private Enterprise Development (PED) project, initiated in 1987 and financed by a grant of $21 million from the U.S. Agency for International Development (USAID), was designed to provide support to help Guatemala meet these goals. Implementing the project are a mixture of private and public agencies, with general coordination of activities being carried out by the Enterprise Chamber of Guatemala (CAEM). Among other things, the project supports the activities of these organizations to: (1) develop new legislation and regulations that would allow for the establishment of free trade zones and "drawback" assembly plants; (2) develop an investment promotion network; (3) train entrepreneurs; (4) strengthen nontraditional export industries through targeted technical assistance; and (5) establish a guarantee fund to facilitate loans to small and medium scale businesses. It is interesting to note that the project
activities address some of the significant sustainability issues raised by SCOPE: creating a favorable policy environment, and ensuring the availability of human and financial resources.

The political environment of Guatemala is characterized by a high degree of uncertainty, with conflict occurring among many groups, including, for example, the democratically elected government, the military, the landless poor, leaders of the traditional private sector, and smaller scale businessmen and entrepreneurs (Ramirez, 1989). Because the activities and outcomes of the PED project depend on collaboration among many of these factions, project designers decided to involve a wide range of stakeholders. A total of nine different organizations (four public, four private nonprofit, and one a combined public and private committee), representing a range of interests, have responsibilities and receive funding for carrying out project components.

In early 1989, once the agreements for the PED project were in place and its implementation had begun, CAEM and USAID requested a team of two consultants to conduct an assessment of the project with the aim of developing recommendations for improving its overall management. Prompting the request was USAID's perception that project start-up was occurring too slowly and that the planning and monitoring of the project components were weak. Initial discussions held with CAEM (as project coordinator), other project implementing agencies, and USAID led the consultants to identify the following commonly perceived problems: (1) lack of understanding among participants, of the role and contribution of each organization in the project; (2) lack of collaboration among organizations; and (3) lack of mechanisms to monitor, evaluate, and replan the design and implementation of project strategies.

Based on these initial interviews, the consultants proposed conducting a collaborative assessment and planning process using an action-planning approach. Directors of the project organizations and USAID officials agreed that a participatory process would best help them reach their goals of fostering better understanding and joint action among the organizations.

The action-planning intervention occurred in May 1989. During that month, a 2 1/2-day workshop was conducted with approximately 40 members of the nine private and public organizations. The design and objectives of this workshop were similar to those of the program in Ghana described previously. That is, it focused on developing a common understanding of the overall objectives of the development effort and the role of each organization, diagnosing problems and strengths related to achieving and sustaining desired project impacts, identifying strategies and action plans to address priority problem areas, and creating ongoing mechanisms for review and replanning.
The Major Issues Affecting Sustainability and How They Were Addressed

Strengthening External Support

Since the PED project involves nine different organizations, much of the external support needed by each of its individual components could be provided by the other participating organizations. Therefore, the workshop brought together the directors and key technical people from those organizations to establish a strong foundation of understanding and mutual support, rather than bringing in additional, external stakeholders.

Early in the workshop, participants worked in mixed groups to analyze the problems and opportunities facing the development of the private sector in Guatemala, and the stakeholders involved in each area. Based on that analysis, participants clarified and reached a consensus on the following five priority objectives to be achieved through the project: facilitating access to credit for small and medium sized entrepreneurs, training and technology transfer for entrepreneurs, development and implementation of laws that support production and productivity for export and local markets, creation and development of an information system for managing the project and for accessing data needed to guide economic development, and increased commercial interchange through the development of markets and promotion of products and new enterprises (CAEM, 1989).

In the discussion of these objectives, the participants recognized that each one required the involvement of more than one organization. While a single organization might have the lead role in providing training for entrepreneurs, for example, another organization would have valuable experience and understanding of the needs of those entrepreneurs that should be used in the design of the training.

Because of the perceived need for collaboration in each area of the project, participants agreed to form five inter-organizational groups to address each of the objectives. The task of each group was to identify strategies for achieving its objective and create an outline of a one year implementation plan. In addition to the inter-organizational work groups, an inter-organizational coordination council held its first meeting at the workshop in which the membership and the responsibilities of the council were clarified. The council agreed to take responsibility for the overall coordination of multi-organizational activities and regular reviews, and replanning of these activities.

At the end of the workshop there was a consensus that both the coordination council and the inter-organizational work groups should continue to meet. Specifically, the participants decided to hold a one day
follow-up workshop immediately, for each work group, so that it could: develop a more comprehensive picture of the issues and problems related to its specific objective, design and test the feasibility of strategies and plans among participating organizations, and plan joint actions where needed. These one day workshops were conducted with the assistance of local, Guatemalan management consultants. In January 1990, seven months after the action-planning program, the Director of CAEM reported that the five inter-organizational groups and the coordination council were meeting regularly, and were making an important contribution to the smooth implementation of project activities.

In spite of success in assisting key players to become more involved in planning the project, a major weakness in the project strategy was not addressed well in this action-planning program. Project beneficiaries (existing and potential entrepreneurs) were not directly represented or involved in planning project implementation. Only one of the organizations (the Guild) directly represented entrepreneurs, while the other organizations had no direct ties to project beneficiaries. This meant that the project was being implemented with limited firsthand information about the problems facing its intended beneficiaries. It also meant that the most important potential force for support of project goals (the entrepreneurs themselves) was not being tapped. This deficiency was identified by some at the workshop as a problem, but there was no consensus on the issue and no strategies were developed to address it.

**Strengthening Internal Capacity and Fit**

Exactly how successful inter-organizational groups have been, and will be, in improving internal decision making, performance and sustainability related to each component, has not yet been measured. From reports, the groups are credited with accelerating implementation and creating a climate for increased collaboration. It is anticipated that they will also have a qualitative impact, ensuring that the development strategies chosen will be both appropriate to, and supported by, the broader environment.

In addition to the establishment of the inter-organizational work groups and the council, the action-planning workshop appeared to have a significant impact on the individuals who participated. As the participants themselves reported at the end of the workshop, and the Director of CAEM recently reiterated, the workshop was a key event that helped them to: gain a clearer sense of objectives and priorities, understand how the different components of the project fit together, and begin working together as a team.

These achievements are essential if the PED organizations are to be able to adopt an interactive strategy for achieving their objectives. The breadth of the project's objectives implies that the implementors need
to reach out actively and influence the environment in many different, interrelated spheres: political, legal, and economic. They need to do this reflectively, however, to make sure that their actions will best contribute to the sector's development.

Significantly, this initial action-planning process seemed to work better in strengthening an interactive problem-solving approach in certain areas, than others. In the development of legislative action and the development of information systems, objectives were clearly articulated at the outset. The individuals attending the workshop had a good grasp of the problems they were trying to address and the feasibility of various strategies. There was also a strong sense of purpose and a spirit of collaboration among the multiple groups involved. For these two work groups, the workshop provided a positive environment in which they were able to make substantial progress in moving their plans ahead.

In other areas, however, the conditions were not as favorable and success was more limited. One group, for example, focused on the need to facilitate access to credit for small and medium size entrepreneurs. CAEM, the organization responsible for influencing the establishment of a credit guarantee fund, was having little success in getting it started, mainly because of lack of interest and cooperation by the banking community. Although members of two key organizations (the Bank of Guatemala and the Chamber of Finance) participated actively in the workshop, their representatives did not bring with them significant decision-making authority or influence. After the workshop, the plans developed for getting the component on track were never completely implemented, and the effort continues to languish.

Another limitation of the action-planning workshop was its lack of impact on plans that had already been made. The organization responsible for providing training for entrepreneurs had scheduled a series of seminars that were based on training programs designed originally for a much different clientele, managers of large organizations. Some individuals raised questions about this approach and whether it would meet the special needs of the entrepreneurs. During the workshop, however, the senior managers of the responsible organization showed little interest in reformulating the approach to the training. Rather, they focused on how they intended to reach their predefined project targets for numbers of entrepreneurs trained. They did, however, incorporate into their plan, a process for evaluating the results of the training, in order to modify it after the first year.

This experience points to both the limitations and strengths of action-planning. The limitation is—if an organization is not committed to reflecting upon and reexamining its plans and strategies—action-planning will not force it to do so. On the other hand, action-planning does reinforce a process of self-directed learning, in which organizations have
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an opportunity to judge and learn from their own performance through follow-up programs and meetings. Action-planning is, therefore, simultaneously accommodating and demanding of the institutions and individuals involved. Another important point is that action planning cannot be fully effective when used as either a discrete, or a one-time event. If it is initially successful, participants will usually insist that the process be continued, with ongoing sessions and annual reviews and replanning meetings.

The vitality of the Guatemala intervention is demonstrated by the fact that, despite its time-limited nature, its impact continues. The decision to continue the action-planning process was based on very strong demand by participants at the end of the PED workshop. CAEM and the implementing organizations made a commitment to continue the process started through the work groups and coordination council. They also committed themselves to conduct a large action-planning workshop one year following the first one, to review progress made against the plans and to replan for the next year.

In support of this follow-up work, it is important to note that the action-planning program successfully strengthened CAEM in its role as facilitator and catalyst. CAEM professionals were actively involved in planning and conducting the action-planning program with the facilitators, and strengthened their own skills in this area because of it. They are not continuing this role for subsequent workshops, assisted by Guatemala-based consultants.

SUMMARY ANALYSIS

The Consulting Capacity project in Ghana and the PED project in Guatemala were at different stages of start-up when the action planning program took place. The Consulting Capacity project was, from the very beginning, designed and implemented according to the principles of an action-planning program; the PED project was already formulated and activities had already begun prior to the action-planning intervention. While there were fundamental similarities in focus and achievements, there were also striking differences between the two that point to the likelihood of sustainability of benefits arising from the Ghana project, and threaten the performance and sustainability of certain elements of the Guatemala project.

The two programs shared several common strengths. Both helped the participating organizations to further articulate priorities and strategies, develop internal capacity, and establish effective relationships with key actors in the environment. First, the structure of the action-planning programs provided project participants an opportunity to assess common needs and develop or refine appropriate project strategies. Second,
both action-planning programs helped to either create (in the case of Ghana) or strengthen (in the case of Guatemala) legitimate organizations that could implement the articulated plans that had been prepared. In each case, participants developed plans in relation to overall project objectives and a diagnosis of the problems and stakeholders involved. The documentation of these plans became a common point of reference for those involved in implementation, and internal mechanisms were outlined and agreed upon for ongoing coordination and planning.

Third, the program helped strengthen the support provided by external organizations. In Ghana these included existing, informal networks of consultants, the government, and donors; in Guatemala they comprised both public and private organizations operating within the scope of the project. The action-planning program in Ghana resulted in the redirection of a new donor-funded project toward supporting the consultants’ plans. In Guatemala, the large number of organizations involved in the project established closer working relationships and began collaborating on achieving common goals. The need for this kind of network approach to development is emphasized not only by the SCOPE model, but also by recent research in the design of rural development (Smith, Lethem & Thoolen, 1980; Honadle & Cooper, 1989).

Nevertheless, several intervening variables can be identified that affected the success of the action-planning program in Guatemala, and will likely have a negative impact on both performance and sustainability. These variables are (1) the degree to which the entrenched interests and the plans of implementing organizations might support the accomplishment of specific project targets, but might be counterproductive to the achievement of project objectives; (2) the absence of commitment to certain project strategies by key organizations, and the consequent low level of participation in planning and implementation; and (3) the degree to which the ultimate beneficiaries of the change effort are not involved in its planning.

It is a strength of the action-planning program, however, that these issues were clearly identified, and can be more easily addressed through future efforts. Not all issues will be addressed by one action-planning event; several iterations are necessary to surface and address the range of strategic and operational problems.

The program in Ghana was able to avoid some of these problems because it took place before a project was designed, and before development funding was yet tied to specific project outputs. In this action-planning program, the openness of the design process was actively supported by the donors involved and the government. Using the action-planning approach at this stage helped develop a set of institutional relationships and project activities that would be both effective and sustainable. Significantly, the prospective beneficiaries were taking the lead
in defining their own program. Nevertheless, follow-up monitoring and planning will be equally key to keeping this effort on track.

The comparison of these two cases suggests several lessons about how best to establish a positive foundation for sustainability early in a development project using an organization development, action-planning approach. First, work should be done as early as possible to get agreement on project objectives, identify who must be involved, analyze problems and strengths, and develop appropriate strategies and plans. It is easiest at the beginning of an effort to include a broad range of stakeholders and the expertise needed to establish a solid foundation for improvement. While it may be substantially more difficult to initiate the actions needed to promote sustainability after implementation has already begun, efforts such as those in the Guatemala case can often provide a foundation for further improvements.

Second, the action-planning process must be iterative, allowing the participants to build upon the assessments and decisions of the past and continually refine the strategies needed to achieve the ultimate targets. The plans coming out of the workshops in Ghana and Guatemala were not finished blueprints, but rather current approximations of plans that needed to be revisited, reviewed, and revised on an ongoing basis.

NOTES

1. Both of these efforts are multi-sectoral, although each had a significant percentage of activity devoted to agriculture.

2. From the private sector, these organizations are: the CAEM, the Guatemalan Management Association, the Nontraditional Products Exporters' Guild (the Guild), and the Guatemalan Chamber of Finance. From the public sector, the offices include the Directorate of the Industrial Policy, the Directorate of Foreign Trade, and the Exporters' Licensing Office, as well as the Guatemalan Central Bank. In addition, also involved in the project is the combined private and public body, the National Council for the Promotion of Exports.
From 1972 through 1987 the government of Cameroon relied on a public monopoly to finance, import, and distribute subsidized fertilizer. In 1987 it took that monopoly twelve to fourteen months to supply 64,000 tons of subsidized fertilizer. The fertilizer cost an average of $0.18 per kilo to be manufactured and delivered to the port of Douala and an average of another $0.22 per kilo to be delivered to farmers (IFDC, 1986). Farmers paid only $0.15 per kilo. The total cost to the government for the subsidy program was approximately $20 million.

In 1988, the private sector (commercial banks, private importers, and cooperatives) assumed the financing, importation, and distribution of subsidized fertilizer. Under this new arrangement it took only six to eight months to provide 63,000 tons of fertilizer. Due to increased world prices, the fertilizer cost an average of $0.22 per kilo, but only $0.11 per kilo to be delivered to the farmers. The subsidy rate had been reduced, so farmers paid an average of $0.18 per kilo. The total cost to the government was $6.7 million. In sum, in the one year it took to dismantle the public monopoly and replace it with a privatized system, delivery times were cut in half, in-country distribution costs were reduced 16 percent, and $13.3 million in budgetary savings was realized (Abbott, 1989).

The source of these dramatic results was the Fertilizer Sub-Sector Reform Program (FSSRP). The FSSRP is a five-year policy reform program supported by USAID undertaken by the government to establish a private fertilizer marketing system in Cameroon that is competitive,
sustainable, and subsidy-free. However, the FSSRP's significant initial accomplishments have not been easily won, and whether its early success will lead to long-term sustainability is an open question. The FSSRP experience has shown that the process of policy reform is a lengthy, time-consuming one that begins with the identification of a problem and extends through research, policy dialogue, to the design of the reform measures. In the case of the FSSRP, these preliminary phases took over two years. More important, policy reform does not stop with the signing of the agreements or the promulgation of the new policies. It continues during implementation, is inherently confrontational, and requires continued monitoring and intervention to become sustainable.

An idealized notion of policy reform emerged in the early 1980s, when donor attention first turned to structural adjustment and policy dialogue, that conceived of policy reform as rapid to design, essentially self-implementing, and self-sustaining. Given that the earliest efforts at structural adjustment addressed highly skewed macroeconomic policies such as over-valued exchange rates, which are easily altered, it is not surprising that this perspective emerged. However, as the scope of structural adjustment has widened from macroeconomic policy to encompass sectoral issues such as parastatal reform, price liberalization, or banking decontrol, it has become increasingly evident that the idealized view is overly simplistic. Critics have argued that missing from the idealized view is recognition of the deeply political nature of policy reform (Grindle, 1977; Cohen, Grindle & Walker, 1985; Heaver & Israel, 1986; Grindle & Thomas, 1989) and sufficient attention to the pitfalls inherent in the implementation of reform efforts (Lamb, 1987; Moore, 1988; Brinkerhoff & Morgan, 1989).

The SCOPE framework incorporates the political and bureaucratic realities of policy reform (see Chapter 3). Within this framework, policy reform is the process of substituting one set of institutional arrangements for another, where institutional arrangements are understood to mean the full range of formal and informal rules, regulations, procedures, and incentives in the economic, political, and social spheres that guide human interaction. Naturally, there are advocates or stakeholders in the prevailing policy regime who benefit, in one way or another, from the way the regime operates, and they will resist alterations to it for fear of losing some, or all of those benefits.

Sustainable policy reform is a complex undertaking. To achieve the desired behavioral changes, a new set of institutional arrangements must be designed and put into practice, which is easier said than done. Reformers need to consider the nature of the goods and services involved. Such things as the "publicness" or "privateness" of the goods or service subject to impose restrictions on the design of efficient institutional arrangements.
Next, reformers need to be sure that the new rules and procedures reduce transaction costs and produce sufficient incentives to elicit the desired outcomes. If the transaction costs remain too high or incentives are inadequate, then the reform will fail at the outset. To be sustained, these outcomes must be valued sufficiently highly by stakeholders and beneficiaries to counter pressures to derail the reform. This means that designers and supporters of reform must not only be concerned about implementation in the short run, but must consider how reform will persist over time.

The move from design to implementation is not always straightforward. The usual policy handles available to reformers are formal rules and regulations. It is not always clear in advance, how informal practices will interact with the new formal rules and procedures introduced in policy reform. The complexity and uncertainty mean that reform needs to be seen as an iterative process, with various rules and incentives modified over time.

Also affecting implementation is the capacity of actors to either advance or oppose the reform's progress. Establishing new institutional arrangements does not necessarily mean they will be effectively used. For example, privatizing importation will not lead to better results if private businesses lack the capacity to pursue importing activities in the first place. Awareness, knowledge, and skill are all aspects of capacity and cannot be assumed.

THE NATURE OF THE GOOD AND THE NATURE OF THE ENVIRONMENT

On the surface, fertilizer would seem to be a commonplace commodity. It is a private, albeit heavy good like cement or flour. However, the nature of fertilizer and the nature of the environment which governs its manufacture, distribution, and use impose fairly rigid requirements. To begin with, fertilizer is not a single commodity, but a dizzying array of types, both solids and liquids. Agronomic research has shown the plant nutrient requirements are quite specific, and soil characteristics can be highly variable. This combination means that significant increases in production can be realized from modest variations in the content of the fertilizer within the same locality. As a consequence, manufacturers offer a wide range of products to account for the specificity of fertilizer needs.

Another inherent characteristic of fertilizer is its bulk, or more precisely, its low value-to-weight ratio. A 110-pound sack of unsubsidized fertilizer only costs about $15 in a remote Cameroonian village. Rice, which would cost $30 for the same weight sack, has a somewhat higher value-to-weight ratio, but both pale in comparison to a truly high-value-
to-weight commodity, like gold: over $500,000 for 110 pounds. The implications of the value-to-weight ratio become significant when considering economies of scale. Significant savings can be realized, but require dealing with lots of substantial size in production, transportation, and distribution. Efficient fertilizer marketing requires an ability to mobilize and coordinate significant resources, both material (shipping, warehouses, and trucks) and financial.

The seasonality of supply and demand for fertilizer is a factor. Most fertilizer is produced and consumed in the temperate regions of the northern hemisphere. Demand rises during the spring and summer, and declines during the fall and winter; supply and prices follow suit. Tropical regions follow a different agricultural calendar, therefore raising the possibility of cost savings by timing purchases to coincide with the slack winter period. In both hemispheres, farmers buy in relation to planting seasons. If fertilizer arrives late, it sits in stores and warehouses until the next season, progressively losing its nutritive content. Therefore timing and scheduling become very important for efficiency and profitability in fertilizer marketing.

To provide farmers with the right type of fertilizer at the right time and in the right quantities, at the lowest possible price, a marketing system needs organizations and/or individuals that can (1) elicit farmer demands and consolidate them into orders of sufficient size to realize the economies of scale, (2) monitor world price trends and capture the price savings resulting from the seasonality of the market, and (3) ensure timely transportation from the point of manufacture to the points of retail sale. An efficient fertilizer system needs the flexibility to be able to react to changing local conditions or fluctuations in the external market. Flexibility was not, however, a characteristic of Cameroon’s public monopoly, in place from 1972 through 1987.

PUBLIC MONOPOLY: THE OLD INSTITUTIONAL ARRANGEMENTS

From 1980 to 1985, Cameroon’s annual fertilizer consumption was approximately 100,000 tons, minuscule by North American or European standards, but fairly significant by African standards. Of this amount, 40 percent was ordered by parastatal agricultural development agencies or private plantations that the state did not subsidize. The remaining 60 percent was procured through the public monopoly and sold at subsidized levels to smallholders.

The initial beneficiaries of subsidized fertilizer were small-holder coffee growers. The stated rationale for supplying them with subsidized fertilizer was—as partial compensation for the heavy tax levied on coffee—through low producer prices and substantial export taxes. How-
ever, over time, small-scale producers of other crops, such as food crops and vegetables, were incorporated into the subsidized system. The government established a public fertilizer monopoly jointly managed by the Ministry of Agriculture (MINAGRI) and the rural development bank (FONADER). MINAGRI established quotas by province and by distributor, and handled the agronomic aspects of preparing and reviewing tenders. FONADER was the financing and contracting agent.

The private sector, through FONADER contracts, carried out the tasks of importation, transportation from the port of Douala to wholesalers, and retail distribution. However, although relatively efficient in carrying out their specific contractual tasks, these private sector actors were disconnected. Each acted without connection or integration with others involved in the marketing chain. To the small extent that there was interaction, it was only through FONADER. This arrangement created a high level of centralization and effectively removed any flexibility from the system, resulting in numerous problems and inefficiencies. These began with the protracted procedure for issuing public tenders, reviewing bids, and awarding importation contracts. This process involved several ministries and created both delays and opportunities for bureaucratic rent-seeking. The response to pressure to divide the award of contracts among numerous suppliers led to: (a) contacts insufficiently large to take advantage of the economies of scale, and (b) awards to less competitive bids. Delays in awarding transport contracts meant that fertilizer was often stored for lengthy periods, resulting in high storage charges, physical losses, and deterioration in fertilizer quality. Because of untimely and unpredictable deliveries, cooperatives and other distributors could not assure availability at periods of peak demand.

Further inefficiencies existed in the selection and utilization of subsidized fertilizer. First, fertilizer selected for subsidization often had to be special ordered from European manufacturers, thus raising costs. Had these fertilizers been applied as intended, the additional costs might have been justified. Unfortunately, the internal allocation and distribution system often directed this fertilizer to areas where it was ineffective. A larger inefficiency arose from the growing tendency to apply fertilizer formulated for use on coffee to food crops and vegetables. The coffee fertilizer contained nutrients that were wasted on these other crops.

By almost any measure, the public monopoly was inefficient. One indication of the overall cost of the system was the annual budgetary drain of between $20 to $23 million. Another indication was that in 1984 and 1985, the cost of fertilizer to Cameroon was about 15 percent higher than world prices would suggest (IFDC, 1986). A third indication was the existence of a black market. As farmers often did not have fertilizer when they wanted it, they bought fertilizer smuggled from Nigeria. Inefficiency was almost inevitable given the mismatch among the nature
of the good, the environment, and the institutional structure. Centralized bureaucratic structures can perform some tasks very efficiently, but fertilizer marketing is not one of them. There is a fundamental incongruence between the mechanical rules and procedures of the public monopoly and the requirements of efficient fertilizer marketing, outlined in the previous section. Quotas, public tenders, administrative calendars, and bureaucratic insulation from poor performance combined to create a system that ignored fertilizer's specificity, seasonality, perishability, low value-to weight ratio, and economies of scale. The cost of ignoring these requirements was rampant inefficiency.

For certain groups, though, the monopoly was quite profitable. One such group was the local importers, or more accurately, "public entrepreneurs," who served as local representatives for European fertilizer brokers and manufacturers. They served as expediters and troubleshooters, submitting contract bids, influencing the review process, obtaining import licenses, and facilitating port clearances. The other tasks commonly part of importation—assembling a financing package, negotiating purchase contracts with foreign brokers or manufacturers, arranging shipping, or developing distribution channels—were either handled by the European principals or assumed by the government.

The importance of these public entrepreneurs should not be underestimated. That the public monopoly functioned at all was largely due to the ability of these entrepreneurs to "work" the Cameroonian bureaucracy for their clients. However, as became evident once the FSSRP was launched, these skills did not automatically translate into private entrepreneurial capacity.

POLICY DIALOGUE: GAINING COMMITMENT TO REFORM

By 1985, the monopoly's numerous inefficiencies were widely apparent, and were compounded by a decline in world oil and agricultural commodity prices, upon which Cameroon's economy depends. The resulting drop in revenues forced the government to examine ways to reduce budgetary expenditures. MINAGRI requested USAID assistance for a comprehensive review of the fertilizer subsector. For the next two years USAID and the government engaged in a dialogue over various policy options. The first to be examined was producing fertilizer locally, which turned out to be economically non-viable. Three other options remained.

- Continue with the existing MINAGRI/FONADER public monopoly,
- Create a new public-private joint venture to whom a declining subsidy would be paid, or
Liberalize and privatize the importation and distribution of subsidized fertilizer completely.

USAID and senior Cameroonian officials leaned towards complete liberalization and privatization. The latter favored significant reform because of expected efficiency gains and budgetary savings. Midlevel public-sector stakeholders in MINAGRI/FONADER, however, argued for the rehabilitation of the public monopoly, out of a desire to protect their jobs, prestige, and rents. Thus, from the outset of the policy dialogue, USAID confronted diverging interests and commitment to policy reforms within the government.

Cameroon's worsening economic situation cut short the debate. By 1987, the budget crisis foreclosed the status quo and the quasi-public monopoly options. The only viable path left was substantial policy reform leading to privatization. USAID stepped up its dialogue with the private sector, which revealed new impediments to private participation, besides the limited indigenous capacity to perform importation tasks. One problem was the deteriorating economic climate; businesses were increasingly reluctant to pursue contracts with FONADER because of mounting payment delays. That reluctance was further exacerbated by a growing liquidity problem plaguing the banks in Cameroon. In addition, the banks financing fertilizer importation became more risk-averse, regularly requiring financial guarantees of at least 100 percent of the value of the letter of credit. Finally, only a few commercial banks and importers had sufficiently large and secured financial coverage to issue letters of credit that were accepted by international banks outside of Cameroon.

It became clear that private sector participation would not be automatic once the public monopoly was abolished; a new set of supportive institutional arrangements needed to be established in its place. To assure sustainability, these new institutional arrangements needed to do more than promise profitability. The prospect of healthy profit margins was a powerful incentive, but other, nonmonetary incentives, such as greater certainty of payment and reduced procedural bottlenecks, were also important to the private sector. The FSSRP design needed to incorporate these considerations into a concrete, politically acceptable program.

SUSTAINABLE PROGRAM DESIGN: TOWARD NEW INSTITUTIONAL ARRANGEMENTS

The obvious shortcomings of the public monopoly, supplemented with the insights gained through policy dialogue, pointed to a program that contained two major elements: economic liberalization and privatization. Economic liberalization would encompass dismantling the public monopoly and its supporting institutional arrangements by: (1) cancelling
public procurement, (2) announcing publicly the government's intent to privatize fertilizer importation and distribution, and (3) gradually eliminating the subsidy.

Privatization would entail replacing the public monopoly with a sustainable, competitive private market, whose cornerstone would be financial incentives sufficiently attractive to induce private sector participation. Equally important, given the deteriorating business climate and the mutual distrust between the public and private sectors, would be a reduction in the role of government and thereby in the risks and uncertainties faced by private sector participants. Privatization also needed to assure that private sector interest translated into sustained involvement in the fertilizer subsector. Doing so meant confronting the limited capacity of importers, distributors, and banks to perform all of the tasks involved in fertilizer procurement, as well as confronting the lack of experience they had in working together. In short, privatization needed to promote private entrepreneurial capacity.

**Economic Liberalization**

Most of the components of economic liberalization were easy to identify: (1) eliminating the public tender, (2) abolishing import quotas, (3) removing restrictions at all distribution levels, (4) ending quantitative allocation to end-users, (5) abandoning the uniform pricing structure, and (6) eliminating the subsidy.

The subsidy elimination plan required gaining agreement first, on the definition of subsidy, and second, on the timing of the subsidy reductions. The government agreed to eliminate the subsidy over four years; from 65 percent in 1987 down to zero by 1991. USAID gave the FSSRP a measure of conditionality by dividing the $17 million program into five tranches. The first was to be disbursed once the necessary policy liberalization measures had been taken, and the remaining four, annually upon evidence that the liberalization plan was continuing. USAID's assumption was that after four years of progressive liberalization the old institutional relationships would phase out, and private fertilizer distribution networks would be firmly established. Thereafter, the process of liberalization and privatization would be hard to reverse.

**Privatization**

As noted earlier, privatization needed to target incentives to performance and capacity. Both these factors are key to sustainability.
Incentives

The principal incentive to the private sector is price. From the private sector's standpoint, the major shortcoming of the public monopoly's uniform pricing structure was that it made no provision for the costs of distribution beyond the wholesale level, or for profit margins of any kind. It also promoted inefficient fertilizer use by farmers. All fertilizer, irrespective of composition, sold for the same price. Thus a farmer who bought a bag of ammonium sulfate that contained 21 percent nitrogen paid the same price as a farmer who bought a bag of urea, which has twice as much nitrogen. Both of these shortcomings were to be addressed by introducing a system of differentiated prices based on transportation and distribution costs and on fertilizer nutrient content. The new system was not true market-based pricing because the government was not willing to move immediately to full decontrol. The FSSRP incorporated a pricing structure that established target ceiling prices for each province (to account for differences in transportation and distribution costs) and for each fertilizer type within each province (to account for differences in nutrient content).

A second type of financial incentive to be provided was the creation of a revolving fund with two credit lines: one for importation and one for distribution, available under preferential lending conditions. This fund aimed to provide financial resources to ease the entry of smaller, less credit-worthy private sector actors, and to redress the growing liquidity problems in the commercial banking structure caused by the continuing economic crisis. The capital for the fund came from the local currency deposited by the government to match the USAID grant. A local commercial bank, designated as the fund's fiduciary agent, not only manages the credit funds, but the monies provided by the government for subsidy payments, as well. It is an arrangement that addresses two related problems: public sector operational involvement in the program, and delayed or uncertain payments that had plagued the last years of the public monopoly. Under the new set-up, the government would make a lump-sum deposit of funds intended to be the subsidy for a given year in an account of the fiduciary bank, so there would be no question that the subsidy would be paid.

Capacity Building

The limited indigenous private entrepreneurial capacity in fertilizer marketing was recognized from the outset. Also recognized, was the limited experience of the various actors in working directly with each other, rather than through the intermediary of the public sector. To redress these two problems, the FSSRP design envisaged information
dissemination on the reform, and on the ways in which businesses could participate. Other planned activities included informal advisory services, and commissioning of studies and surveys to collect information that would be made available to private firms.

PROGRAM IMPLEMENTATION: PUTTING THE NEW ARRANGEMENTS IN PLACE

Implementation began in September 1987 with the signing of two agreements between the government and USAID. The first priority was satisfying the conditions precedent and in doing so, dismantling the public monopoly. Some of the conditions, such as abolishing public tenders, were essentially met once the program agreement was signed. Other conditions, like formulation of the subsidy removal plan, took a little longer. All were completed by January 1988, and the transition from public monopoly to privatized system was publicized in the official media in the first months of 1988.

In contrast to the economic liberalization measures, progress in establishing the privatized system has been much more difficult and time consuming. The target of making fertilizer available in time for the March-April planting season of 1988 could not be met because it took until May to put in place the procedures allowing the private sector to sign contracts, and until August for the FSSRP to be fully operational. As a result, fertilizer reached the countryside in late October, 1988. This delay was probably inevitable given the complexities of designing and installing new institutional arrangements. For example, abolishing the public procurement system simply required the government to forego the announcement of public tenders. Replacing just the financing component of that system with a private one entailed developing a set of rules and procedures governing access to credit and subsidy funds, as well as earmarking and disbursement procedures that balanced private sector incentives with political acceptability.

But issuing operational rules alone is not enough. Unless the private sector understands and can make use of the new arrangements and unless the public sector agrees to accept its more limited role, the rules will go unheeded and privatization will not progress. Thus, implementing the privatization element not only entailed operationalizing the privatized system so that the private sector could begin its activities, but necessitated a campaign of information dissemination and education so that the private sector would understand the new arrangements. Equally important, the public sector had to be counseled so that it could begin assuming its new relationship vis-à-vis the private sector.
Operationalizing the Privatized System

Three key tasks were involved in bringing the new system to the point where the private sector could begin contracting and importing fertilizer. First, the differentiated pricing structure had to be developed to provide adequate financial incentives to even the most remote regions of the country. Second, management contracts had to be developed between the government and the fiduciary bank, and between the fiduciary bank and participating commercial banks. Third, procedures needed to be designed governing access to the subsidy and credit funds. Completing these tasks proved time-consuming and managerially intensive. Each of them was technically demanding. Designing loan packages, for instance, not only required familiarity with bank lending procedures, but an appreciation of the stages involved in fertilizer importation and distribution. After technically sound proposals were developed they had to be refined through negotiation with both the public and private sectors. Negotiation with the public sector assured that the proposed arrangements were politically acceptable; negotiations with the private sector assured they were operationally sensible and financially rewarding.

Sometimes, negotiations failed to reconcile the positions of the public and private sectors. In these instances a measure of confrontation was needed. For example, to establish the differentiated pricing system, USAID proposed basing prices on actual internal marketing costs obtained with the help of its private sector contacts. The Ministry of Commercial and Industrial Development argued that its standard price-setting methodology must be used, which produced ceiling prices too low to cover all reasonable costs and margins. USAID's counterproposal called for a relaxation of the standard methodology to raise ceiling prices; the ministry balked. USAID resorted to applying pressure on the ministry through government intermediaries to get the counterproposal accepted.

Building Private Sector Capacity

Once all the new rules and procedures were in place, the private sector needed to be made aware of the new institutional arrangements, so they could participate. An information dissemination campaign created awareness through wide distribution of the key FSSRP working documents, media publicity, and a series of briefing sessions with businessmen in commercial centers across the country. Informal brokerage was also needed. The new arrangements attracted the interest of new participants as well as those who had been a part of the public monopoly. But even the old participants were unaccustomed to searching out potential business partners. USAID assumed the role of a "broker": providing inter-
ested parties with the names of others who had expressed interest in participation.

Information dissemination led to informal technical assistance. Those importers, distributors, and commercial banks who were seriously interested in participating often sought out advice, not only on the specific rules associated with the FSSRP, but with more general business issues. For importers these issues related to fertilizer user identity, contract negotiation, cash flow, loan application, bank guarantees, and marketing plans. For the distributors, the questions related to fertilizer need, tender procedures, importer identity, contract negotiation, cash flow, loan application, and bank guarantees. With the commercial banks, USAID focused on clarifying and explaining the role of the fiduciary bank, the functioning of the FSSRP's loan and subsidy program in relation to the physical flow of fertilizer, and the nature of the program's document flow in relation to its financial flow.

Modifying the Role of the Public Sector

Privatization also meant modifying the role of the public sector; reducing it from the dominant actor in the fertilizer procurement system to a facilitator and information source. One critical step was removing the public sector's operational responsibility by introducing the fiduciary bank as an intermediary. But this alone was not sufficient. In addition, public sector officials needed to accept reduced involvement and a new function to support the private sector. Otherwise, they would be tempted to intervene whenever the operations of the privatized system were not to their liking. It has not been an easy transition.

One source of difficulty has been the efforts of disgruntled stakeholders in the public monopoly to impede the implementation of the FSSRP. Another has been the deeply held mutual suspicion of the private and public sectors. From the public officials' perspective, the private sector is greedy and selfish and the functioning of the market cannot be expected to channel these motives into useful social ends; only the state can. Private businessmen see the public sector as interested in control to obstruct and interfere with efficient business operations. Given this mutual mistrust, there has been real uncertainty on the part of the public sector about the benefits of the privatized system touted by USAID, and there has been a tendency to cast any implementation problems in terms of private sector venality. By the same token, any reticence by the public sector tended to be seen by the private sector as a move to reassert control. USAID had an important role in assuring each group of the positive intents of the other.

A third problem stemmed from trying to superimpose this new role on a bureaucracy whose internal institutional arrangements reflect the
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The government's choice of a dominant public sector in the economy. The new role requires the public sector to develop a new supportive strategy, which in turn has structural implications (see Ickis, 1983). Yet the institutional arrangements within the bureaucracy are highly centralized; cherish discretionary power, particularly toward the private sector; and have few incentives for responsiveness or performance. Given the strength of the existing public sector institutional regime, fostering change in the public bureaucracy has not been easy.

Progress to Date

During the FSSRP's first year, two commercial banks, three importers (including two new participants), and four cooperatives participated. However, capacity-building efforts to date have yet to translate public entrepreneurship into private entrepreneurship on a wide scale. Based on the first year's experience, the FSSRP appeared to have identified a set of financial and nonfinancial incentives and appropriate rules sufficient to induce the private sector to market subsidized fertilizer. However, there was a lot of room for improvement. A number of problems arose as private sector actors began to use the new system. These included delays in determining eligibility to receive subsidy and credit funds, too rapid expiration of loan earmarking periods, and maturity dates of loans that rendered them almost useless. Indeed, of the seven contracts signed between importers and cooperatives, almost all of them encountered problems of one sort or another. At the same time, it was important for establishing the program's credibility and for limiting public sector intervention, not to make ad hoc modifications to the rules and procedures. USAID's strategy was to intervene directly and forcefully to resolve whatever procedural and institutional problems arose without altering the existing institutional arrangements. This strategy meant that USAID often had to adopt a confrontational approach with various ministries, due to the difficulties in changing the public sector's role, mentioned earlier. USAID intervention with the particular bureau was usually sufficient to resolve the problems; however, on occasion USAID had to ask high level officials, supportive of reform, to use their influence to remove bottlenecks.

At a workshop held in January 1989 civil servants and business people met to discuss their experience with the first year of the program. While all private economic operators welcomed the business opportunities offered by the FSSRP, they were critical of procedural difficulties and delays which increased transaction costs and caused uncertainty. During the workshop the businessmen organized themselves in working groups to draft proposed changes in the program's formal and informal arrangements as they were defined in various FSSRP documents. The
proposed changes were presented to the government and thoroughly discussed by the workshop participants. They were incorporated, with only slight modification, into the documents governing the FSSRP's second campaign.

Although the 1989 campaign has not been without problems, they are not the same ones that plagued the program in its first year of operation. As this chapter goes to press, the second year of FSSRP operations is drawing to a close. Preliminary indications are that, despite worsening economic conditions in the rural areas, the program will match its performance of the first year. These impressions will be verified in the course of the second annual review. However, it is already clear that continued high performance and ultimate sustainability will be achieved only if the program can continue to address issues related to institutional change, incentives, stakeholders, and capacity.

The hope is that continued negotiation between the public and private sectors, supplemented by technical analyses and capacity building efforts supported by USAID, will further improve the institutional arrangements governing fertilizer marketing in Cameroon, so that outside leverage and confrontation will not be necessary when the FSSRP winds up in 1992.

**SUSTAINABILITY: A LOOK BACK AND A LOOK FORWARD**

The FSSRP was not designed with the SCOPE framework in mind. The program emerged from a conviction that liberalization and privatization were essential if farmers were to benefit from a reliable and low-cost supply of fertilizer and from many small actions designed to realize that vision. However, with the advantage of hindsight the FSSRP, as an institutional change effort, has addressed many of the same variables the SCOPE model identifies as central to institutional sustainability. The program's many actions taken to date have included creating new institutional arrangements, designing reasonable and appropriate incentives, enlisting new stakeholders, achieving performance, and promoting private sector capacity.

The FSSRP also exemplifies several of the key relationships SCOPE posits. The program analyzed the high level of inefficiency in the public monopoly as resulting from the incongruence between the nature of fertilizer and the way the government organized its public procurement system. The better prospects for sustainability of the privatized system stem from the fact that the new institutional arrangements would better reflect the requirements imposed by the nature of the good and the nature of the environment, and thus would be more efficient. A generous earmarking policy for both subsidy and credit funds, as well as the ability to import without firm sales contracts, gives importers the flexibility to
time their purchases to coincide with periods of low international prices. This is a partial explanation for the 41 percent decrease in the price of fertilizer delivered to Cameroon from 1987–1988. Furthermore, private contracting under the FSSRP meant that distributors only bought the types and quantities of fertilizer their clients desired. Competition produced significant reductions in in-country costs and the time to fulfill contracts.

Several issues seem particularly important for long-term sustainability: flexibility, incentives, and stakeholders.

**Flexibility**

A large measure of the success of the FSSRP's institutional arrangements and the resulting gains in efficiency are due to opening up the policy dialogue to include the private sector. Too often policy dialogue is limited to development agencies and the government without involving those who are to be directly affected by the proposed reforms. Had this occurred in the FSSRP, it is certain that more problems would have arisen during the first year of operations.

Moreover, as reform is an ongoing, iterative process, dialogue continues throughout the life of the program. For this reason, annual reviews and workshops provide an effective forum for continuing contacts between both public- and private-sector participants in the reform process (see Chapter 7). Given the problems arising during the second year, further alteration of the institutional arrangements governing the access to the subsidy fund and the credit fund will be necessary. This is all part of the iterative process of modifying rules and procedures to assure that the desired outcomes are achieved in complex and changing environments.

**Incentives**

During the design and implementation of the FSSRP the preoccupation has been to ensure that the private sector had sufficient incentives to participate. The assumption has always been that the farmers have adequate incentives to purchase the fertilizer, even when the subsidy is removed. That assumption flowed from benefit-cost analysis showing significant gains from the purchase and application of fertilizer even at unsubsidized prices. This analysis was based on farmers' observed behavior of buying black market fertilizer when subsidized fertilizer was unavailable.

However, this assumption may no longer be taken for granted. Significant reductions in producer prices for coffee and cocoa and less liquidity in the rural areas have altered the initial benefit-cost ratios.
Farmers' decisions to purchase fertilizer are heavily influenced by non-price incentives such as timeliness, proximity, and quality (Minot, 1989; Minot & Johnson, 1989). The FSSRP has done much to improve these incentives, but nevertheless, farmers' ability to pay for fertilizer could change. Without access to cash or credit, farm-level demand will dry up, bringing the entire marketing chain to a standstill and threatening the sustainability of the privatized system. An ongoing FSSRP priority will be to ensure that the existing institutional arrangements continue to provide enough incentives to farmers to continue their purchases of fertilizer.

Stakeholders

The FSSRP needs to enlarge the number of stakeholders in the privatized system. Several new private distributors have entered the program, and this is encouraging. These distributors now have a stake in the continuation of the program. Less encouraging is the situation at the importation level. Fertilizer importation is dominated by firms owned by non-Cameroonian, while the Cameroonian who imported under the public monopoly have been shut out. This situation has already caused the government some unease. As a result, USAID has intensified its efforts to attract Cameroonian participation. There is little more that can be done with institutional arrangements or incentives. Therefore, the stress will be more explicitly on increasing capacity. Formal workshops and seminars are now planned to supplement the informal technical advice in such areas as finance and contracts, in an attempt to raise indigenous capacity to a level where they will be able to compete effectively.

NOTES

1. The FSSRP, which runs through September 1992, is supported by $20 million in grants from USAID: $17 million in the form of non-project assistance and a $3 million project component. The discussion and analysis presented in this chapter represent the authors' personal views of the policy reform implementation process in Cameroon and do not represent official USAID positions on any issues discussed. The authors would like to thank Jay P. Johnson and Robert Shoemaker for their comments on earlier drafts.

2. Besides the SCOPE framework, the discussion draws on Ostrom and Ostrom (1977a, 1977b) and E. Ostrom (1986). The authors would also like to thank Ron Oakerson and Susan Wynne of Indiana University for better acquainting them with institutional analysis.

3. Most fertilizer contains one or more of the three basic chemicals: nitrogen,
phosphorus, or potassium. These are provided in a variety of compound forms, are mixed together in varying proportions, and are often supplemented with other nutrients such as boron or magnesium to create the numerous types available.
The Three Phases of Sustainability in Morocco's Institut Agronomique et Vétérinaire Hassan II

Alice L. Morton and James B. Lowenthal

The ability of organizations in the developing world to adapt to the dramatically changing conditions of the 1990s has become an increasing concern of international development agencies. To address this problem, development management practitioners have devoted increasing efforts to better understand the dynamics of sustaining the benefit flows of key sectoral institutions in the Third World. Drawing on major traditions of organizational theory, researchers have attempted to refine a set of theoretical propositions on institutional sustainability. These propositions, collectively known as SCOPE, make use of basic systems theory (Katz & Kahn, 1978), organizational contingency theory (Thompson, 1967; Lawrence & Lorsch, 1967), and political economy (Zald, 1970) to describe how Third World organizations cope with sustainability issues (see Chapter 3).

The purpose of this chapter is to apply aspects of the SCOPE framework to a specific Third World organizational setting to determine the model's utility in explaining sustainability prospects. The institution is Morocco's Institut Agronomique et Vétérinaire Hassan II (IAV), an agricultural university that prepares students for undergraduate and graduate degrees (including the doctorate) in the agricultural sciences. Since the IAV is currently facing sustainability issues, the results of this analysis can also be used to suggest sustainability strategies for the 1990s. Finally, the outcomes can be used to propose modifications to the SCOPE framework.
SYSTEMS THEORY, WEBER, LIFE-CYCLE ANALYSIS, AND INSTITUTIONAL SUSTAINABILITY

Before describing the case in detail, it is useful to review the key concepts to be used in testing the SCOPE framework. Two of SCOPE's most powerful contributions to our understanding of institutional sustainability are the specification of the dual interacting processes mediating performance and capacity, and the organization and its environment, respectively. Contingency theory suggests that organizations design their basic structures to differentiate major functions while assuring the integration among functions required to offer products and services desired by the organization's clientele. Differentiation addresses the capacity issue, or the capability of the organizations' key operating units to behave in predictable ways. Integration addresses the performance issue, or the capability of the organization to produce something which the market will pay for (as we will see in the IAV case, even public institutions must respond to "market publics"). Effective organizations address this design task by taking into account both production technology and their environments.

Systems theory suggests that organizations, to survive, must assure a flow of resources (in terms of money, material, personnel, and information) into the organization that exceeds the flow of resources (in terms of finished products or services) out of the organization. System theorists use the term entropy, drawn from the physical and biological sciences, to denote whether a system is in balance with its environment (inflows equal outflows), in expansion (inflows exceed outflows), or in decline (outflows exceed inflows). For private commercial organizations, negative entropy describes a situation in which an organization fails to mobilize on a continuing basis the resources required to stay in business. For governmental organizations, this failure is symbolized by deficit budgets, increasing subsidies, and plummeting service delivery.

The dialectic posited by the SCOPE framework is that organizations must develop a minimum productive capacity to grow and adapt, while at the same time demonstrating their utility to resource-providing markets or publics. Organizations which spend long periods in capacity development encounter difficulty in justifying continuing support by constituency groups. At the same time, organizations must constantly assess their environments to determine when market preference shifts require organizational adjustments in research and development, marketing, or product choice. In the IAV case, it can be argued that institutional leaders relied on a mix of strategies to promote sustainability. The authors have borrowed liberally from Weberian sociology and organizational life-cycle analysis to portray how the choice of a particular strategy corresponded to the major challenge facing the IAV.
In his theory of the evolution of the bureaucratic organizational form, Weber (1947) suggested that the initial source of social authority derived from a leader's charismatic behavior. The ability to articulate mission and purpose and to act decisively were necessary and sufficient qualities to assure organized performance. As the complexity of the tasks to be achieved increased, however, more complex social forms were required to assure coordination. Using religious, military, and state organizations as models, Weber derived his theory of bureaucracy to propose an ideal type of organization which was responsive to increased complexity and requirements for social control. The authority of the charismatic individual is circumscribed by organizational form to prevent inappropriate use of the leader's power and influence. Weber referred to this process as the "routinization of charismatic authority."

The authors have also relied on a set of concepts, derived from population ecology, which can be broadly characterized as organizational life-cycle analysis (Kimberly & Miles, 1980; Romanelli, 1989). Life-cycle theorists posit that organizational survival is a function of the characteristics of the environment in which a new organization is nested and the managerial processes are used to guide the organization in its growth and development. The kinds of intervention strategies appropriate for organizational change vary depending upon an organization's state of development. Strategies that are effective for the brand-new organization may be ineffective in a steady-state or declining organization.

The authors suggest that the Weberian paradigm, amplified by a life-cycle approach, can serve as a useful tool in understanding the process by which emerging institutions, such as the IAV, cope with complex and often hostile environments to pursue institutional growth and sustainability.

In the case of the IAV, the first phase of the process, characterized by the charismatic leadership of the first director, corresponded to the need of the institute to develop basic capacity (the first component of the SCOPE dynamic). The second phase, marked by the routinization of charismatic authority, corresponded to an increased awareness by the IAV of the tenuousness of key resource providers and the need to demonstrate constituency-relevant performance (the second component of the SCOPE dynamic). The third phase, which we characterize as the transition to a post-bureaucratic adaptive mode, corresponds to IAV's need to adjust curriculum, research, marketing, and financing in response to significant changes in its environment (the third component of the SCOPE dynamic). In life-cycle terms, the organization is moving beyond the first stage of maturity to proactive adaptation (Adizes, 1979).

Therefore, the case material presented in support of the authors' findings follows a three-phased model of institutional sustainability. The first phase is roughly coincident with the first two USAID-funded proj-
Case Experiences

The second phase is roughly coincident with the third USAID-funded project, 1980–90. The third phase, which is emerging as the result of two recent project evaluations (Eriksen et al., 1987; Lowenthal et al., 1988), characterizes the university on the eve of the 1990s and will determine, the authors contend, the success of the IAV in sustaining its benefits at a critical juncture in Moroccan development.

CHARISMATIC LEADERSHIP AND CAPACITY DEVELOPMENT: SETTING THE STAGE FOR SUSTAINABILITY

At independence in 1956, Morocco had an undergraduate school of agriculture, the National Agriculture School at Meknes, opened in 1947 to train the sons of French colonists. There existed only a handful of Moroccan agricultural graduates who had been trained abroad. In 1964, the Government of Morocco announced its intent to establish a Moroccan college of agriculture. The Institut Agronomique Hassan II was established by royal decree in 1966, beginning with one faculty member, twelve students, and no physical plant. The institute was designed to create a Moroccan center of excellence in agronomic (and later in veterinary) sciences equal to the best that France and other developed countries had to offer. This was a self-conscious mission on the part of the institute’s founder, who remained its director for the next thirteen years. Several themes were of special importance. First, the institution had to be truly Moroccan. For this to happen, it had to have Moroccan faculty, and teach students skills that would enable them to deal with Moroccan agricultural problems in the Moroccan setting. The IAV was given a statutory mandate to provide all training in the fields for which it is responsible. It was incorporated as a public establishment, which means that it has a certain amount of autonomy, although it comes under the “tutelege” of the Ministry of Agriculture and Agrarian Reform.

In addition to obtaining independent status for the IAV, the founder realized early, that for the institute and its graduates to compete on equal terms with those graduating from French grandes écoles, it was critical that the degrees from the IAV be seen as equivalent to those obtainable abroad. This meant, ultimately, that the IAV needed to grant its own, internationally refereed doctorate, in addition to developing a master’s-level (troisième cycle) program.

The second major theme was to prepare students to address the problems of Moroccan agriculture, which meant they must become familiar with those problems in the field—both on the institute’s research farms, and on farmers’ fields. This led to the formulation of the fieldwork program, or stage (i.e., practical training course) system, through which all students must pass each year. In many cases this is the student’s first
exposure to rural life and to agriculture and animal husbandry. Each year's stage is designed to teach specific skills and further develop overall awareness of the agriculture setting. The fieldwork program was further supported by the interdisciplinary approach characterizing the institute as a whole, integrating both agriculture and veterinary medicine (from 1971), and the human sciences along with the physical and natural sciences.

A third important premise was that students should compete to enter, and then to remain at the institute. (Higher education is free in Morocco, and performance is usually not measured until the end of all course work.) Socioeconomic status and pressure from influential persons were to be disregarded. Gender was not to be an obstacle to admission. Grades were to be based on performance, including performance in fieldwork and practical work. At the same time, the scientific caliber of programs was to be maintained at the highest level, jointly with the Faculty of Science at the university. The first-year intake remains substantially larger than the capacity of the institute for second-year students and beyond.

Finally, to become a faculty member at the IAV was to be an honor, fostered by the atmosphere of honest intellectual enquiry and the quality of the student body and faculty colleagues. Thus, though the status and remuneration of teacher-researchers was not formally different from that enjoyed by faculty at other institutions of higher education, an esprit de corps was developed at the IAV from the start. This has grown to include an emphasis on individual and team excellence in research.

Although the philosophy of the IAV resembles the American "land grant" model of higher agricultural education, the articulation of these precepts preceded U.S. university collaboration under USAID sponsorship. They form the structural and valuative underpinnings of the institutional sustainability which, we argue, characterizes the IAV today. U.S. assistance began in 1969–70, and has continued under a series of three USAID-funded projects. At first, there was only U.S. university technical assistance to two departments—soil science and animal science. The preponderance of expatriate faculty were still French, and most IAV students went to France for master's level training.

Under subsequent projects, the collaborative relationship with the University of Minnesota was encouraged and expanded to include training for faculty of most departments—master's level training in the United States, as well as doctoral level training leading to granting of the IAV Doctor of Sciences degree. Doctoral and master's level research were only to be carried out in Morocco. This was a sine qua non of the principle of Moroccanization and adaptation of modern agricultural science to the Moroccan setting. During the first ten years of collaboration, U.S. resident technical assistance was oriented toward building the basis for
key agricultural science departments and toward faculty training in the United States. Attention was focused on promoting the U.S. "hands-on" approach to teaching and research, through the mechanisms of American university faculty working at the IAV, and continued, often extended stays by IAV faculty participants at the University of Minnesota. The institution-building dimension of the relationship was not formally addressed except through expounding the land grant philosophy. Nevertheless, teaching by example was continuing, especially at the new Horticulture Complex at Agadir in the south of Morocco, where a very small number of students were taught by a small faculty group, under the supervision of a technical assistance team, characterized by relative autonomy and little turnover.

Following land grant institution lines, separate structures were created for instruction, research, and extension and outreach. As a result of strong encouragement from Minnesota resident experts and from USAID, the IAV attempted to create positions resembling those of deans, to head these divisions. This was not a completely successful experiment, however, since the management of the institute had previously been based on strong leadership from the top linked with consensual decision making by the faculty. Suggestions coming from the faculty were often approved by the director, but only after a good deal of time had passed and the faculty members or members had shown that they were really serious about the idea or innovation.

Long "gestation periods" were the rule, in an atmosphere sometimes characterized by "benign neglect" from the top. New faculty members continued to be handpicked by the director and his deputy (the secretary-general) until 1983–84. However, there was an interesting mixture of dictation of research and disciplinary direction to meet pre-established targets (see, following) and encouragement of initiative in this managerial style.

Therefore, by the end of the first phase, the ultimate structure to be adopted at the IAV, for management of the organization itself, was still evolving. In addition to the pressure for adopting the U.S.-style land grant model, complete with deans, "sections" (akin to schools or colleges in the United States), and departments, there was at least equal pressure to maintain and expand the French model of labs in which students worked slowly with a senior scientist toward an eventual degree, which might or might not involve original research on the student's part, either in the lab or in the field.

These matters were being decided, meanwhile, against a backdrop of national-level manpower planning, in which the institute's senior management and faculty were involved. The IAV was still bound by targets set by the Ministry of Agriculture for so many graduates at each level in each discipline, and by a set of assumptions about the appropriate
level of training to correspond to the civil service structure that was not responsive to the real needs of farmers in the kingdom, with the possible exception of large commercial farmers.

At the same time, as a sort of rear-guard action (or an avant-garde one, depending on its level of long-term success), IAV's director and faculty were determined to bear in mind the broader constituency of Moroccan small farmers, both in the irrigated and rainfed sub-sectors. This commitment was made tangible through the fieldwork program, the applied research carried out by the Department of Human Sciences with other grant funding from USAID (Morton, 1988), and the orientation of the Agadir complex to reach out to small and medium horticultural producers, as well as to large commercial enterprises.

ROUTINIZATION: DEFINING THE ORGANIZATION'S BOUNDARIES

During the early 1980s, expansion continued. Substantial assistance was provided to build up the complex at Agadir. Funds were also given for laboratory equipment, research support for returning doctoral level students, and technical assistance to help establish the new “American-style” departments. Faculty advisers who visited their IAV faculty “students” in Morocco were encouraged to help in the institution-building tasks. Faculty committees were established, similar to those existing in American universities, M.S. programs were established, research facilities were designed and equipped, and IAV faculty began to participate in international research efforts, conferences, and symposia.

Nevertheless, the project evaluation of 1983 indicated that delegation of authority to the new departmental structures, although beginning, was being implemented too slowly by American standards (Morton et al., 1983). The team also noted that there was a discontinuity between the research mission fostered by U.S. assistance and the teaching mission which underpins the institute's mandate. The fact that there are no financial incentives for faculty to engage in research continues to be a key aspect of this problem. Yet, it was already becoming clear that faculty who were beginning their doctoral research projects on return to the IAV were getting a good deal of attention. They were also endowed with additional funds for equipment and materials, as well as access to post-doctoral funding for consultation in the United States with advisers, and participation in international conferences. These early doctoral-level participants in the USAID-funded project were thus privileged, and seen to be so. This, in turn, reinforced the élan which began to be associated with doing research. In fact, this growing dedication to research caused problems between the IAV and the National Agronomic Research Institute (INRA), mandated to carry out research in all agricultural areas.
Donor attempts to integrate the IAV and INRA research and researchers have not always been successful, since there is a fundamental turf issue between the two institutions that is not susceptible to easy solution.

Minnesota resident technical assistance personnel and the Minnesota project manager continued to stress extension and outreach as part of the land grant philosophy to be adapted to the IAV. These are, traditionally, functions of the agriculture ministry's extension service. Here again, there is a conflict which remains to be resolved. Some argue that the IAV is doing more extension than the extension service, which has for years been oriented toward service delivery—plowing, spraying, pruning, and providing agricultural machinery, credit, and other inputs. IAV leadership, with encouragement from Minnesota, saw itself as having the real comparative advantage at extending scientific research results to Moroccan farmers, and is now doing contract on-farm extension and applied research for some larger producers. Applied research in physical and social sciences is being given more emphasis than many have been the case in the past. The Extension Service, a weak link in the Ministry of Agriculture structure, and not favored by the minister, has languished during this same period.

The USAID impact evaluation (Eriksen et al., 1987) took place after the founder had retired from the directorship of the institute, when USAID assistance had been going on with the University of Minnesota for more than 15 years, and when the former project manager at Minnesota—whose impact on the development of the collaborative relationship had been highly significant—had become USAID's Chief Agriculture Development Officer in Morocco.

In summarizing institutional development since 1980, the USAID impact evaluation makes the point that the most important change in the past five years had been IAV's increasing ability to conduct all the necessary training for students through the M.S. degree level in a variety of disciplines. The number of students having to go abroad for master's training was declining each year. Further, some 200 foreign students were being trained at the IAV.

In sum, then, the Institute has gone from 12 students in 1966 taking their basic science training from non-Moroccan faculty in temporary facilities at Mohammed V University to its present status of over 2,100 students and 346 faculty members (of which 85 percent are Moroccans . . .) on its own campuses in Rabat and Agadir. The Institute now offers degrees equivalent to the American B.S., M.S., and Ph.D. Degrees in agriculture and a doctor of veterinary medicine [sic] (Eriksen et al., 1987:3).

The same report, however, brought up the "problem of institutional fragility." Lowenthal (Eriksen et al., 1987, app. B) noted that the institution was already in transition,
passing from a period of rapid initial growth and development under charismatic leadership to a period of maturity as a large and complex agricultural university. The generation of leaders who brought the Institute to this point in its history is rapidly passing from active participation in IAV affairs. The new administrators and faculty... face the challenges of creating administrative systems to run the larger and much more complex institution, while preserving the measure of flexibility in daily operations necessary to inspire full participation by faculty and students in IAV affairs. Given the uncertain economic conditions in Morocco at present, a successful transition is not guaranteed, and the evaluation team believes there will be ample scope for creative donor assistance in university planning and administrative systems.

This call for collaboration with U.S. universities in meeting the challenges of transition had also been made by the 1983 evaluation (Morton et al., 1983), as well as in the project revision, which advocated among other things, a broadening of the IAV’s “partnership” with American universities as a group. It was already becoming clear to some that a complete reliance on the University of Minnesota for training and technical assistance in all fields might be shortsighted. The IAV management, even at that point, was interested in collaborative relationships among specific departments or sets of disciplines, such as irrigation, and counterpart centers of excellence in the United States.

Eriksen et al. (1987) stressed the potential for the IAV to adapt to its changing environment in Morocco and Moroccan agriculture by meeting needs of the growing private sector, addressing needs of its farmer constituents through applied research and extension, leveraging more funds through its contract work with other government agencies and international organizations, and taking advantage of the tuition that could be obtained from a growing group of foreign students. Their report also argued for continued emphasis on international-level quality in teaching and research, for the sake of the institute as a whole, as well as to retain qualified faculty. The evaluators felt that the routinization of charisma was essentially a positive step, since it allowed more faculty and student input in the life of the institute, and encouraged the strengthening of departmental structure.

**TRANSITION: STRENGTHENED CAPACITY AND ADAPTING TO THE ENVIRONMENT**

In the two years since then, the IAV has moved on all these fronts. The Moroccanization of the faculty is nearly complete (93 percent in 1989). There are 337 faculty, of whom over 60 hold doctorates, and a majority have participated in the USAID-assisted faculty development program. By the end of the current project in 1992, it is anticipated that 129 doctorates will have been awarded to project participants.
A key issue for IAV’s continued sustainability is its financial resource base. Another is its ability to remain flexible. The issues are related to each other, and to the redefinition of the institute’s relationship to the other key institutions in the agriculture sector in Morocco, to external donors, and to collaborating institutions abroad. This ability to adjust to the external environment by managing the interface between capacity and performance is the core of the SCOPE dynamic.

One of the main facilitating factors in IAV’s development and sustainability to date has been the political and economic stability that have been the rule in Morocco since the institute was created. While political stability continues, economic growth has declined, and public sector budgets are either diminishing or holding steady. The boon in agricultural projects, including heavy infrastructure projects sponsored by multilateral donors, has also declined. For the first time, IAV graduates are having trouble finding jobs in certain sub-sectors. The government is no longer committed to hiring all of them, and the private sector job market is only now becoming defined. The relationship between the IAV and the University of Minnesota has provided a further source of stability until very recently.

At the same time, flexibility in adapting to a changing environment, including that portion which is made up of U.S. universities, has also been characteristic of the IAV. It has been able to respond fairly quickly to policy shifts, and their attendant manpower implications; to a nascent move toward privatization of public-sector agricultural institutions; to changes in the number of students seeking admission; to requests for more practical training of graduates as well as to requests for more theoretical training for the same graduates from different potential employers; and to moves by students and faculty for curriculum reform.

On the whole, the IAV has also been able to respond positively to changes in its status vis-à-vis other agricultural higher educational institutions and other agriculture sector agencies, including INRA. A major characteristic of its environment which has favored this flexibility has been the continuation of support—albeit often silent—from His Majesty Hassan II, the institute’s patron. During periods of agricultural crisis, for example, the IAV has been allocated the task of organizing knowledge to combat calamities such as drought and locusts, on behalf of the kingdom.

Another element of IAV’s sustainability in transition has been the “artificiality” of its environment. This is particularly true in terms of donor support for agriculture. Until recently, this support provided employment for the “valued output” of the IAV (i.e., its graduates) but had little direct impact on its fiscal situation. The government has been able to assume that the indirect positive impact for the IAV will continue,
as well as the more direct positive impact from U.S. funding under the series of USAID projects with the University of Minnesota. Yet, this situation has allowed the government to avoid grappling with IAV's postproject sustainability. This was a key issue for the 1988 evaluation team. Several recommendations were made to allow the IAV to adapt better to the changing environment, including defining several areas of intensive program concentration: natural resources and environment, agribusiness and the private sector, socioeconomic and food policy analysis, and water management. Other recommendations concerned ways to meet recurrent costs, to improve and diversify external relations, to reprogram certain project resources to assist in achieving sustainability for the 1990s and beyond, and to perfect inter-institutional arrangements in Morocco for the same reasons.

While the IAV has agreed to a broad range of recommendations for resource mobilization and has acted on almost all of them, USAID has focused almost exclusively on financial sustainability, particularly on the size of the core contribution from the national budget. While essentially accepting the findings of the evaluation, the mission disagrees with the IAV on how the IAV should realign existing and new project funds to mobilize additional resources—from the public and private sectors in Morocco, from international donors, from contract work in other countries, and from foreign students—while at the same time maintaining the international standard of excellence in teaching and research.\(^1\)

The IAV has emphasized the idea of a new consortium with its U.S. university partners to help it gain access to international contract work. The University of Minnesota has agreed to do the groundwork for the development of such a consortium, and has begun to draft responses to donor requests for technical assistance. USAID has agreed to consider the IAV as one of the institutions involved in the implementation of new agriculture and rural development projects, but initial IAV proposals have not been accepted by USAID. The IAV is also negotiating with USAID on the use of remaining budget flexibility (non-participant training costs) to support agriculture sector modeling, arid lands regional research and training initiatives, and contract research for the private food processing industry. USAID is unwilling to agree to using USAID funds for these purposes until it is assured that the IAV has achieved adequate control over its recurrent cost situation.

Although the Government of Morocco, through its allocation of Public Law 480 local currencies and its own budget, has increased allocations to the IAV this fiscal year, USAID remains unconvinced that the recurrent cost problem is being taken seriously enough. The agency has, on the basis of this view, essentially frozen all but doctoral training funds under the existing project. Despite the fact that the IAV is consistently noted as a very successful case of international collaboration in agricul-
tural higher education—even by other donors—the current staff and director of the USAID mission in Morocco appear to believe that continuing funding to consolidate this capacity at the IAV would delay the IAV and the government from taking full fiscal responsibility for recurrent costs of teaching and research. Supporting the next steps in the institutionalization process seems to present a whole new set of issues for USAID and the University of Minnesota which do not fit the classical institution-building model.

We have argued here and elsewhere that a very important element of IAV's success in sustainability is in fact its ability to obtain resources outside Morocco—and from sources other than the national government. In a case study prepared for a recent USAID-sponsored international conference on agricultural higher education, Morton (1989) posited that by virtue of IAV's acceptance among other institutions of higher agricultural education in developing and developed countries, it has a rather unique ability to sustain its capacity, and even to improve its performance. Because it has refused the "recipient" role, but rather insisted on treatment as an equal—if sometimes junior—partner, IAV now appears to have the requisite credibility and international linkages to pursue the strategies it is developing to mobilize resources and convert them into sustained institutional capacity. It may thus provide an example of how to organize for sustainability for other developing country institutions with similar mandates, but which are still in the process of capacity building with significant donor support.

What the USAID evaluation team recommended in 1988 and the Board for International Food and Agricultural Development has called for in the class of projects of which the Agronomic Institute Project is a member, is a kind of postinvestment linkages project, which will precisely ease this period of transition. World Bank staff have also argued for attention to this kind of postinvestment approach, since this stage of institutionalization may indeed be the most precarious. The IAV has proposed that this be done within the framework of a new consortium. So far, however, donors have not concretely evinced their interest in postproject linkage support.

In the end, what may be the test and the proof of IAV's institutional sustainability is its capacity to survive this phase without the type of broad-based support available from USAID-financed institution-building projects. As its present managers and faculty have been saying recently, they are able to "do more with less." Numbers of international grants are up, as are Government of Morocco contracts. Some managers and faculty fear that research has preempted the teaching mission of the institute, and therefore argue that a slowdown in research funding would not be without its positive aspects. Others believe that they can
find adequate resources without direct support from USAID or any other large, bilateral donor.

It has been frequently stated that IAV's ultimate mission and mandate are to provide skilled manpower for the Moroccan agricultural sector. At worst, absent postproject investment by donors, the size of the faculty would contract, and these skilled agricultural scientists, many of them competitive at the international level, would eventually move to other public-sector agencies and to the private sector. Research carried out at the IAV would decline, which would probably mean that agricultural research in Morocco overall would be both less applied and less scientifically interesting. It is likely that extension efforts would also decline, although many of those now being undertaken are funded outside the USAID-Minnesota project. Whatever USAID's position on future funding is, ultimately the on-going national educational reform will have implications for faculty numbers, student enrollment, and the shape and content of the curriculum.

The U.S. university partners—and USAID—may choose to play a role in this reform, or to abstain. If they abstain, however, there is a good chance that the IAV faculty trained in the United States, who are the least senior, will have difficulty ensuring maintenance of the aspects of the land grant model that have been adopted by the IAV, and adapted to the Moroccan environment. This is part of the institutional capacity which has, indeed, been developed through international partnership with U.S. universities. Arguably, the international standard of instruction and research might also decline under such a circumstance, although this is less clear, and more open to speculation.

As the Minister of Agriculture and Agrarian Reform indicated to us in 1988, no external actor has the right to dictate how much skilled manpower Morocco is entitled to, or needs. So long as this view is maintained, and even the bare minimum of funding provided, it is likely that the IAV Hassan II will remain an institutional sustainability success story, although the nature of what is sustained, how, and by whom is almost certainly a function, at least in part, of continued collaboration with U.S. institutions.

**IMPLICATIONS OF THE IAV CASE FOR THE SCOPE MODEL**

Using a Weberian construct and a life-cycle overlay, the IAV case contributes to the SCOPE model in three ways: (a) in the identification of charismatic authority as a critical variable in initiating successful (read "sustainable" in their early stages) institutional forms; (b) in improving our understanding of the dynamic interplay between capacity and performance, and (c) in focusing attention on the environment at the earliest stages of institutional growth.
The SCOPE model does not deal well with beginnings. It assumes an existing organizational form which effective management will manipulate to achieve organizational goals and purposes. According to Sarason (1972), the pre-history of an organization has as much to say about its success and survivability, as its own particular history of adaptation does. In the IAV case, the critical variable in creating organizational form and sustaining it through its formative years was the charismatic authority of the first director. The authority was expressed in the forceful and articulate statement of the institution's purpose—to the King, to donors, and to stakeholders in Morocco's agriculture sector. It was expressed in the authoritarian and unyielding commitment to institutional quality. Finally, it was expressed as a statement of what was uniquely responsive to the Moroccan agro-social context. When fledgling organizations are competing for resources, the role of charismatic authority in mobilizing resources cannot be overemphasized. At the same time, routinization of that authority is required when organizational complexity overwhelms the management span of the leader.

Second, while the SCOPE model does focus on the importance of both capacity and performance, it does not provide any guidance on the management of the dynamic tension between these two qualities. Does capacity precede performance, or vice versa? When should a manager move from stressing one, to the other? How does a manager diagnose whether his or her underlying resource mobilization problem stems from a capacity problem, or a performance problem? The IAV case suggests that young institutions can be given a grace period to focus almost exclusively on capacity development, but that performance issues may have to be addressed sooner than first anticipated. For over a decade, IAV managers devoted the majority of their resources to building a strong, capable, Moroccan faculty. A relatively benign environment appears to have lulled IAV administrators into believing that the school's existence would, in and of itself, be sufficient to motivate resource providers to continue contributing to its development. The failure to focus more specifically on performance issues, as defined by key resource providers, has threatened IAV's institutional sustainability.

Finally, the IAV case suggests that the environment, even if favorable or unhostile at the creation of an institution, must be constantly monitored so that long-term strategies for sustainability can be designed and factored into organizational performance. The IAV administrators were late in addressing key financial problems, first within the Moroccan budgetary setting, and second, in IAV's relationship with its key funding sources. As successful as the IAV has been in creating an institution of remarkable utility, both within its national boundaries as well as within the region, it now faces serious sustainability issues on the eve of the 1990s. Based on extensive interviews with key institutional actors, it is
clear that the IAV is now aggressively pursuing long-term sustainability strategies. Without realizing it, they have adopted SCOPE management principles, and in the process, have improved our understanding of the SCOPE model.

NOTE

1. A new World Bank project has not yet been approved by the Moroccans. If implemented, it would operationalize the Master Plans for Research and Extension drawn up in the mid-to-late 1980s, with bank-funded technical assistance, and little enthusiasm on the Moroccan side.
The Limits of Sustainability: Management Improvement in Haiti's Planning Ministry

Derick W. Brinkerhoff

Among the key bureaucratic actors in the environments of agricultural and rural development projects are the ministries of planning and finance. Their procedures and practices contribute to the amount of flexibility in institutional environments, the resources that flow from them directly influence the degree of artificiality in those environments, and their staff are stakeholders in project activities and outcomes. The stakeholder role of planning ministries derives from these agencies' mandates to guide and coordinate national socioeconomic development in all sectors. Planning ministries are important audiences attuned to demonstrations of institutional performance and capacity as a result of national and international investment. Such demonstrations are frequently necessary conditions for continuation of project and institutional funding. In addition, government political interests are served by being able to demonstrate flows of goods and services to various beneficiary groups as a result of development investments, and the information upon which these claims are based often is provided by planning ministries.

Donor agencies in a variety of countries have recognized the role planning and finance ministries play in project environments, and the impacts they can have on institutional sustainability. In recognition of this role, some donors have targeted these agencies for assistance as part of a larger strategy to increase the sustainability of sectoral investments. The U.S. Agency for International Development (USAID) has taken this approach in many of the developing countries receiving U.S. foreign aid. This chapter presents the case of a project to improve the perfor-
mance and capacity of Haiti's planning ministry, and applies the SCOPE framework, described in Chapter 3, to a major actor in developing countries' institutional environments. This case illustrates one of the key precepts of the framework, namely that system environments can themselves be treated as systems.

USAID's Technical Consultants and Training Project contained a component, treated as an autonomous sub-project in its own right, that provided institutional strengthening to the Ministry of Planning's "Direction de Suivi et d'Evaluation" (DSE, Office of Monitoring and Evaluation) to build its capacity in development project monitoring and evaluation (M&E). This four-year effort, referred to as the DSE Project, took place from October 1983 to November 1987.

THE DSE PROJECT

Background and General Context

Haiti, which occupies the western end of the island of Hispaniola in the Caribbean, is recognized as the poorest country in the western hemisphere and among the poorest in the world. With 6.1 million inhabitants, Haiti's population density is one of the highest in the Americas, while per capita income, health and education conditions, and basic infrastructure are the most precarious. Its highly dualistic economy is largely dependent upon agriculture, coffee being the major exports, but agricultural productivity is stagnant.

Independent since 1804, the country has endured almost continuous political strife, characterized by violent government transitions and a long series of short-lived presidents and dictators (see Weinstein and Segal, 1984; Ferguson, 1987; Rotberg, 1988). The latest of these upheavals took place in the period 1985–89, with the ouster of the Duvalier regime, an interim government, aborted democratic elections, a military-controlled election, and two subsequent army coups.

Over the past twenty years, Haiti has become increasingly dependent upon foreign assistance. Despite relatively high levels of multilateral and bilateral aid over the years, donor agencies in Haiti have had a difficult time promoting development and relieving the worst of the crushing poverty that afflicts the rural majority (see, for example Brinkerhoff, 1988b; English, 1984). Institutional problems are a compounding factor, acknowledged by most observers to be enduringly resistant to resolution (Brinkerhoff & Garcia-Zamor, 1986). For example, the lack of service delivery capability outside the capital city severely limits the outreach of the education, health, public works, and agriculture ministries. Thus, the sustainability of institutional change has figured prominently as an issue in Haiti. Over the past decade, USAID has sought to address issues
of institutional capacity in critical development sectors through a variety of strategies, ranging from technical assistance and/or budget support to public sector ministries to assist them to improve their performance, to bypassing Haitian government public sector agencies in favor of private voluntary agencies with existing service delivery capacity. The Haiti mission's consulting and training project, and its DSE subcomponent, were born of USAID's desire to strengthen public sector organizations that play an important role in the support and management of Haiti's development efforts.

The general environment in Haiti in 1983, for sectoral development projects and the DSE Project, featured high levels of artificiality, limited amounts of flexibility, and what appeared to be a reasonable level of stability. Table 10.1 summarizes the state of these environmental factors at the time.

The Haitian Public Sector: The Task Environment

Within the general environment lies the task, or operating environment in which an organization functions. In the case of the Haitian Ministry of Planning, the task environment comprises the national public administration. Haiti's public sector is critically weak in performing as a source of stimulus and support for socioeconomic development (see Garcia-Zamor, 1986). Historically, public sector entities have mainly served as mechanisms for ruling elites to extract resources from a docile and downtrodden rural peasantry. The distribution of the few available public goods and services is heavily skewed in favor of the capital city of Port-au-Prince. The highly dualistic economy has produced a stark dichotomy between the urban and rural populations' standards of living and well-being.

Both a source and a symptom of the public sector's lack of effective operational capacity, is its chaotic nature. Its internal structures, procedures, and practices barely comprise a unified system of public administration in the usual sense of the term. The Haitian government is made up of a collection of separate ministries, agencies, and bureaus; each with its own set of rules, regulations, and procedures (Brinkerhoff & Goldsmith, 1988). Despite the existence on paper of a legal framework to regularize the public service, the practice of public administration in Haiti has been characterized by loose accountability for use of funds and production of goods and services, endemic corruption, a high degree of "personalismo" and informal relations, insulation from outside influence, and a general resistance to change.2

These features of the Ministry of Planning's task environment conditioned the direct influences of the external context on its operations. These are summarized for the ministry in Table 10.2. The combination
Table 10.1
General Environmental Dimensions in Haiti as of 1983

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Stability</th>
<th>Flexibility</th>
<th>Artifiaility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic</td>
<td>• Interlocking state and economic elite control of markets. • Moderate, but increasing inflation.</td>
<td>• Government exercises strong control of formal sector. • High levels of corruption. • Outside of elite, many barriers to entry, monopolies, etc.</td>
<td>• Harmful distortions in prices due to Government fiscal, pricing, and marketing policies. • High foreign debt levels, reliance on donor agencies. • Weak revenue collection and taxation capacity. • Economic activity depletes natural resource base.</td>
</tr>
<tr>
<td>Political</td>
<td>• Stable political situation maintained by force, Duvalier dictatorship. • Elite minority in control, rural poor majority disenfranchised.</td>
<td>• Highly bureaucratized, inefficient public sector. • Centralized authority, little local-level devolution, emphasis on political control. • Active non-governmental sector in rural service delivery.</td>
<td>• Political structures reflect highly dualistic nature of Haiti; legitimacy imposed by state power.</td>
</tr>
<tr>
<td>Sociocultural</td>
<td>• Social patterns relatively stable, vast gap between rich and poor. • Downtrodden, docile peasantry.</td>
<td>• Strong unwillingness by elite to accept changes in social patterns.</td>
<td>• Any change reducing power of elite viewed as illegitimate by ruling clique. • Strong class and racial tensions.</td>
</tr>
</tbody>
</table>

of indirect (Table 10.1) and direct influencing factors created an environment that was relatively hostile (see Table 3.1). As instability increased, it was to become even more hostile.

The DSE Project: Objectives and Components

The Ministry of Planning’s major responsibility was programming and overseeing the national development budget, of which about 70 percent was funded by international donor agencies during the mid-1980s. Within the ministry, the DSE was specifically charged with allocating resources among projects, monitoring implementation progress, and evaluating results. Government interest in the project sprang from an assessment by the Minister of Planning that his agency was having dif-
Table 10.2
Direct Influences on the Ministry of Planning’s Task Environment

**Level of demand for MOP outputs:**

- High level of espoused demand for outputs by government decision-makers; actual level of demand highly variable. Most demand for financial reporting outputs, less real demand for national plan, performance and results monitoring, or evaluations.

**Nature of MOP outputs:**

- Outputs are mainly information, analysis, and coordination; very difficult to assign costs or assess value of the outputs. Outputs are highly dependent upon input sources beyond the MOP’s control, i.e., sectoral ministries, finance ministry, and donor agencies.

**Characteristics of stakeholders:**

- Stakeholders have high demand-making ability and high degree of control over resources needed by the MOP. Interests of stakeholders are often conflicting, and it is difficult to assess real versus espoused interests in many situations. Stakeholders, especially international donors, tend to be relatively well-organized. The MOP has little control over, and only small amounts of influence on, its stakeholders.

Haiti's Planning Ministry

The Ministry of Planning (MOP) faced significant challenges in effectively fulfilling its monitoring and evaluation responsibilities. Already receiving USAID budget support for routine operations, the minister requested technical assistance to be provided to the DSE. USAID responded with the DSE Project.3

The objective of the project was to improve the effectiveness of the DSE in carrying out M&E functions in ways that contribute to better development project implementation. The focus of project activities to attain this objective was threefold: the DSE's management information system (MIS), its organizational procedures, and its staff capabilities. Project outputs included the following:

- Modification and improvement in the DSE's MIS.
- Creation of a sustained capacity to monitor and evaluate project progress and performance.
- Application of the capacity to development projects.

The project financed technical assistance for systems development and training, the purchase of vehicles and equipment, and some support to operating expenses. The major component of these latter were salary supplements. Technical assistance consisted of one long-term resident adviser, complemented by periodic short-term specialists.

In mid-1985 the project scope was expanded to include technical assistance to the newly-formed management office for the USAID-funded PL-480 Title III Program. This office handled monitoring and evalua-
tion for about 25 projects that received funds generated by the sale in Haiti of U.S. surplus agricultural commodities. It was attached to the Ministry of Planning.

Institutional Development Strategy

The DSE Project's institutional development strategy derived from principles of organization development and action research, and explicitly aimed at capacity-building and performance in recognition of the importance of both for sustainable change (see Brinkerhoff, 1986; Brinkerhoff & Ingle, 1989). The various key dimensions of the internal system laid out in the SCOPE framework were all targeted for change: the technology of monitoring and evaluation employed by the DSE, the structure of the office, and the operating strategy used. The process of designing and introducing change to enhance the prospects for sustainability was also addressed, taking an action-training approach similar to that described in Chapter 7. The resident adviser fulfilled both a management consulting and a training role. He worked with DSE staff to assist them in jointly analyzing their situation, to identify the office's performance gaps, to devise a set of activities to fill the gaps, and to program the necessary action steps. From this set of consulting tasks, particular training needs were determined, and the adviser, supported by short-term assistance, collaboratively designed and delivered action-oriented training so as to build the skills to carry out tasks more effectively. This institutional development approach sought to forge direct links between data gathering and problem definition, between learning and doing, and between training and operational responsibilities.

Project activities were characterized by iterative cycles of collaborative consultation and training to move the project toward its objectives. The intended orientation of both the long- and short-term technical assistance was to work with rather than for the DSE, and later the Title III management office, to accomplish what the bureaus wanted and needed to do. It was not always possible to maintain this orientation in practice, though the resident adviser aimed at maximum participation by his DSE colleagues, to the extent that circumstances allowed. While there were some differences of perception between the resident adviser and DSE staff regarding the exact specifics of the project's components and their relative importance, complete agreement existed on one critical factor: the project "belonged" to the DSE.

Changing the DSE's Internal Dimensions

The Ministry of Planning as part of the public sector, and the DSE as part of the ministry, enjoyed (and continue to enjoy) institutional sus-
tainability in its most restricted sense of longevity and continuing existence. The ministry has served as the organizational locus for economic planning, and barring a political or constitutional change that eliminates this function from government, it will persist. However, the picture changes when using the definition of sustainability stated in Chapter 2: the ability of a system to produce outputs that are sufficiently well-valued so that enough inputs are provided to continue production. In fact, the impetus for the DSE Project was the Minister of Planning's dissatisfaction with the DSE's ability to generate meaningful and timely information on development investments. As the project began, to underscore his dissatisfaction the minister instituted a shake-up at the DSE, by firing all the staff and then selectively rehiring them, along with a few new people. In the public sector, staff and budget are the major inputs an agency or a unit needs to continue functioning; without some changes the DSE risked losing the minimum inputs required to exist, much less perform. The DSE Project initiated the changes by engaging the office management and staff in joint analysis of the DSE's operating technology, its structure, and its strategy.

Technology

Status at Project Start

The DSE used several technologies, some of which were relatively invariable and routine, and others which were not. Toward the unvarying and routine end of the spectrum stood the office's financial information collection and monitoring tasks. Sectoral ministries submitted annual budgets and plans for their projects at the start of the fiscal year (though these often arrived late), and following approval, projects received their first quarter disbursement from the finance ministry. Projects then submitted quarterly post-expenditure vouchers that the DSE reviewed, approved, and sent to the finance ministry for disbursement of the next funding tranche. Although the tasks involved were mechanical and routine, they consumed a lot of staff time, given the need to get accurate information out of the sectoral ministries, and cross check expenditures with project bank account records, and so on. Skills required were essentially those of accounting.

Less routine and more variable was the monitoring of project activities and outputs. Each project in each sector had a different timetable. Depending upon the type of project and the sector, activities and outputs varied, with some more easily quantified, observed, and assessed than others. Further idiosyncrasies were added by the projects' individual management teams, some of which were better or more assiduous than others at filling out the ministry's forms, developing output indicators,
and collecting progress data. Skills to conduct activity monitoring successfully, included planning and management, analysis, plus some sectoral experience.

The least routine and most complex of the DSE's technologies was evaluation. The office had no standardized evaluation approach, each evaluation undertaken was different in objectives and focus, purpose, clientele, evaluation methodology, and so on. Timing was ad hoc according to demand or opportunity. In addition to the skills listed for monitoring, evaluation required methodology skills (questionnaire design and interviewing, for example), and some social science knowledge.

Project Changes

To achieve better fits between the DSE's technologies and its tasks, and between the technologies and skills, the project envisioned several changes. First, the routine technology of budget tracking and reporting was to be streamlined and made more routine to increase efficiency and reduce the staff effort required for the task. Two activities were involved: a revision in the planning ministry's information collection form that sectoral ministries submitted for every project in the development budget, and computerization of the treatment of the data collected. The form, known as the FIOP ("Fiche d'identité et d'opération de projet"), required information that was both redundant in that it repeated information already in the hands of the DSE, and superfluous in that many of the data items included in the form were neither analyzed nor used for any decision-making purposes. Reducing the information demands of the FIOP to the minimum needed would cut down on the amount of data processing DSE accountants needed to do, and would make the form less onerous to fill out. Computerization would increase the quality of data processing while freeing up staff time to do more analysis, and less hand copying of ledgers.

Second, the technologies for M&E were to be modified in the following ways. Increased routinization was pursued by identifying the commonalities between the information used for monitoring and for evaluation, clarifying the DSE's purposes in monitoring and evaluation and setting some priorities, developing both standard procedures for the two technologies and sector-specific subsets of procedures to take account of variation. At the same time these technologies were made more complex by introducing an analytic framework for implementation that explicitly dealt with environmental uncertainty, the need for flexibility and replanning during implementation, and the need to achieve results. This change shifted the emphasis of the monitoring and evaluation technol-
ologies from focusing solely on deviations from official procedures to outputs, products, and results.

**Structure**

**Status at Project Start**

At the start of the project the DSE, with a total staff of about 20 was structured as a standard hierarchy composed of three functional divisions: a budget programming unit, a monitoring unit, and an evaluation unit. Office staff, assigned approximately evenly among the three units, reported directly to a management unit consisting of the DSE director and two assistant directors. Each unit was theoretically responsible for exercising its function for every development project in the annual portfolio, 237 projects in 1983–84.

Given this structure and the small size of each unit relative to the total number of projects, the staff’s ability to develop any in-depth knowledge about a particular project was haphazard at best, and nonexistent at worst. The more complex technologies of monitoring and evaluation were affected the most.

In keeping with the centralization of authority characteristic of the Haitian public sector, staff referred all decisions regarding approval or disapproval of project budgets, vouchers, and disbursements to the DSE director. Another by-product of this structural pattern, common to many developing country public organizations, was a lack of initiative-taking by the staff, and a consequent overload on the office management unit (see Kiggundu, 1989).

**Project Changes**

To fit with the revised technologies and reframed tasks of the office, and to confront its staff limitations, the project proposed a new structure for the DSE. The new design established a sector-based structure that assigned staff members sets of projects in particular sectors for purposes of both monitoring and evaluation. The budget programming unit remained as it was. Three units were set up: an infrastructure sectors M&E unit, a productive sectors unit, and a social sectors unit. The intent was to allow staff to develop more in-depth M&E information about a selected number of projects than the functional structure permitted.

Later, an element of decentralization was introduced with the creation of a unit leader slot for each of the three M&E units and the budget programming unit. Unit staff reported to the leaders, who had responsibility for overseeing the work of the unit. This structural change some-
what reduced the management load on the director and his two assistant directors.

**Strategy**

**Status at Project Start**

As is often the case with public sector agencies charged with assuring that activities and procedures are undertaken according to the extant legal framework, the DSE emphasized "doing things right," i.e., making sure projects followed the practices laid out in the legislation governing the Haitian development budget. This operating strategy was vividly illustrated by a staff member's response to a question posed by the resident adviser upon his arrival:

*Question:* "What do you see as the job of the DSE?"

*Answer:* "Our job is to stop projects when they don't follow proper procedures."

In short, the DSE viewed itself as a "policeman" watching over the sectoral ministries to make sure they did not step out of line. For the most part, the office pursued a mechanical strategy: emphasizing the active dimension of performance ('doing things right') and an internal orientation to the environment that stressed control, certainty, and an acceptance of the inherent "rightness" of the public investment management system (see Figure 3.3). Reinforcing the mechanical strategy was the staff's perception that project implementation was a straightforward and mechanical task of faithfully translating plans into actions. Thus, monitoring was similarly straightforward, and to a certain extent, so was evaluation. This mindset supported the mechanical strategy by "assuming away": (1) the need for learning, since everything that needed to be known was considered to be in the projects' plans; and (2) external complexity and uncertainty, since what was viewed as most important was following proper ministerial procedures, as opposed to achieving development results.

**Project Changes**

DSE staff recognized that the policeman approach was not very effective, but previously their response had been to pursue the enforcer role, only harder. The project sought to help the DSE shift to a technical assistance stance, more in line with the realities of the Ministry of Planning's limitations vis-à-vis the sectoral ministries. This strategy stressed collaboration based on mutual interest: the DSE needed information from the sectors, but at the same time sectoral projects could improve their implementation performance by closer attention to the same information set.
The combination of structural reorganization and revisions in the DSE's M&E technologies impelled the office to modify its dominant operational strategy away from the mechanical one it had been utilizing. The change in M&E technologies stressed coping with uncertainty and learning as a key characteristic of implementation. This meant that the DSE, in conducting M&E, needed to be much more attuned to the external environment in tracking and analyzing what projects were doing, why, and how well. Further, the increase in M&E complexity meant that DSE staff could not assume that the office knew all there was to know about M&E; thus an openness to learning was required.

The intent was to expand the repertoire of the DSE's operating strategy beyond the only current one applied to all tasks, which in the past had led to weak performance and low capacity. This would leave the budget programming tasks to remain guided by a mechanical strategy, but manage the M&E tasks via a mix of adaptive, reactive, and interactive strategies that would incorporate more learning and more of an external orientation.

**Implementation Experience**

A start-up workshop was the means for the joint analysis of the DSE's technology, structure, and strategy that led to the elaboration of the changes to be put in place described previously. The atmosphere leading up to, and during the workshop was characterized by performance pressure; the Minister of Planning and the director-general had excessively high expectations for the project's immediate impact upon the problems of the DSE and its parent ministry. They were feeling the effects of the minister's rash public promise to carry out large numbers of project evaluations by the end of the year.

The decisions made and the products generated, during the workshop, provided the basis for the major categories of activities undertaken in the subsequent years of implementation: MIS, procedures improvement, staff skill-building, and joint DSE-donor evaluations. A critical gap in the building of consensus and commitment was the inability of the project to bring top management within the circle of whose who understood and were committed to what the project sought to accomplish, its methodology, and its links to the rest of the planning ministry, and the sectoral ministries. In the crisis-driven environment of the planning ministry, it was difficult for the DSE to gain the necessary breathing room, from the near-constant stream of emergencies and last-minute orders, to work on the performance and capacity improvement plans the office had made.

At the end of 1984 the DSE had its first concrete opportunity to put into practice the strategy decision made at the start-up workshop: to
modify the office's role away from that of a policeman toward technical collaborator with the sectors. A new and dynamic Minister of Agriculture was given a mandate from the president to clean house at the ministry, and make it more efficient. The minister began to examine internal management problems, noting weaknesses in information handling and central-level project supervision, and requested assistance. The DSE and planning ministry's project identification unit designed and conducted a workshop for their counterparts in agriculture to help them start to improve sectoral M&E capacity. However, suspicion, hidden agendas, and bureaucratic game-playing at various levels in both ministries prevented the establishment, over the long-term, of a new kind of relationship, despite the potentially promising start represented by the workshop.

The DSE also conducted a workshop for the project identification unit, as a step toward expanding the base of management improvement innovation within the planning ministry. The follow-up that would have helped to institutionalize the changes, though, did not take place. Again, top management demands to respond to crises and the pull of routine deflected the actors involved from innovation.

These workshops exemplified the problems the DSE Project faced in trying to initiate sustained capacity-building in the Ministry of Planning. While all participants were enthusiastic about the technical content, the bureaucratic environment of the ministries offered few real incentives for applying the new technologies and tools. At the espoused level, key decision makers, buttressed by the legal framework for managing the development budget, readily and repeatedly expressed their support. But beneath the surface rhetoric, the serious work of empire building, influence and favor trading, and resource control, went on untouched. These were the real stakes for the stakeholders involved.

With the expansion of the project's scope to include technical assistance to the Title III office, there was the possibility of increasing the leverage for the organizational changes the project was attempting to promote in the DSE. The resident adviser hoped that if the Title III Program was successful in getting the sectoral projects receiving Title III funds to prepare adequate implementation plans and submit progress information, this could facilitate the DSE's efforts to obtain compliance with project information reporting requirements for the development budget. Over time, however, it became apparent that the sectoral ministries' more positive response to the Title III office was in reaction to the office's ability to enforce the disbursement rules with the weight of USAID behind it. The DSE continued to have limited success in obtaining the input needed to move its MIS beyond financial information to include reliable activity and output data.

The fall of the 28-year Duvalier father-and-son regime in February
1986 unleashed a storm of pent-up sociopolitical forces (Ferguson, 1987), among which was highly vocal criticism of the lack of impact of the government’s donor-supported development programs comprising the last five-year plan. The Ministry of Planning was a central target of this criticism, and was blamed by many as a key contributor to the failure of years of development expenditure. The new planning minister, installed by the interim governing council immediately after Duvalier’s departure, was charged with addressing the planning ministry’s weaknesses. In the larger environment, violence and unrest continued to keep most development projects throughout the country in a state of suspended activity. Many projects had previously been the targets of looting and destruction, and thus were not merely on hold, but had regressed. In addition, both the interim government and the donors were flooding the planning ministry with demands to design and manage emergency programs to provide visible benefits to the now restive urban and rural poor.

As public pressure grew, to stem criticism and given the impression of taking decisive action, the new leaders chose to abolish the Ministry of Planning and reorganize it (see Note 5). In standard Haitian style, this action was prepared behind closed doors, hastily assembled, sprung upon those involved, all at once, to avoid any possible opposition, and touted as a panacea for all previous ills. From the interim government’s limited perspective, a visible cosmetic change that succeeded in convincing people that something was being done was more valuable than the long-term, nuts-and-bolts organizational improvements that could possibly have made the ministry a more effective agency but that were not readily visible to the public.

The new Ministry of Planning’s top management reaffirmed its commitment to the project, and later sent an official letter to that effect to USAID. A new director for the office was appointed, but the DSE suffered a 40 percent staffing cut. In the reorganized ministry it was back to business as usual. For the project things were worse. The director, unfamiliar with the DSE or with the project, had to be brought on board. Activities had to be replanned and agreements renegotiated. There were fewer DSE staff to work with, key counterparts were no longer present, and staff had less interest in its activities, given concerns about their future. DSE staff morale hit a new low and remained there. In the face of government and donor pressure to move money for emergency programs, attention focused almost completely upon the DSE’s budgeting tasks. There was no time to be concerned with M&E beyond financial tracking. With its staff reductions, the DSE needed to become more efficient in handling the routine financial information flowing through the office. DSE commitment to develop and install the project-initiated computerized MIS remained strong, because it directly served the office’s central responsibility of monitoring project expenditures in the devel-
opment budget and responded to the key demand of national and interna-
tional stakeholders.

The termination of technical assistance and the project completion date coincided with yet another reorganization. This time the DSE lost its identity as a separate office, and its functions were merged with two other units to create the “Direction d’Investissement Public.” Within this larger office were established sectoral units with responsibility for development projects, from inception to evaluation, plus donor contact. Former DSE staff were spread among these units. The DSE project’s MIS was adopted as the MIS for all offices with development responsibilities.

Ten days later Haitian and international hopes for a transition to democracy were dashed, when the November 1987 election turned into a bloodbath, at the hands of military-supported goon squads. The United States suspended bilateral development assistance to the Haitian government.

**THE LIMITS OF SUSTAINABILITY**

The design phase of the DSE Project reflected a rare confluence of needs, interests, and availability of resources. The Minister of Planning perceived a performance gap, an important prerequisite for initiating change (Hage & Finsterbusch, 1987), and requested assistance. The USAID mission had the desire to be responsive and was willing to provide funding. The design effort was carried out in close collaboration with the DSE to assure that the activities to be undertaken responded as closely as possible to client needs and desires. What all parties underestimated was the impact of bureaucratic politics and the incentive structures they created in the project’s operating environment, both within the Ministry of Planning and among it and the sectoral ministries, on the possibilities for improving the DSE’s performance and capacity to sustain performance (see Heaver, 1982).7

In the Haitian public sector, significant and powerful actors were not (and are not) interested in efficiency, effectiveness, or improved performance. Although the project was conceived of as a technical intervention to remedy organizational deficiencies, the ramifications of addressing MIS improvement moved the intervention far beyond the purely technical realm (see Wildavsky, 1983). These political dynamics undermined the incentives of all actors to confront these ramifications explicitly. The Haitian operating environment was fundamentally hostile to the changes the DSE Project attempted to institutionalize in the Ministry of Planning. Further, the level of stability in the larger national environment deteriorated drastically over the life of the project because of the societal upheaval leading up to, and following the ouster of the
Duvalier regime. The setting contained such levels of hostility and turbulence that no matter what operating strategy the DSE tried to employ, it was nearly impossible to make performance gains, much less to build increased capacity.

These environmental features imposed progressively stricter limits on the sustainability of the internal changes made in the DSE, as implementation proceeded. The coalition of interests present at design was insufficiently longlasting or powerful to maintain the impetus needed to pursue the changes intended. Turnover of key actors contributed greatly to the fading of the coalition; during the four years of the project there were, on the Haitian side, five planning ministers and three DSE directors, and on the USAID side, three mission directors. Each of these had different interests and agendas."

Looking at the SCOPE definition of sustainability helps to elucidate the limits to sustainability that the DSE Project confronted. First, the turnover in actors meant that the assessment of the value of what the DSE produced kept changing. The project was started because one Minister of Planning felt that the DSE’s outputs were deficient, but that minister only lasted six months into the project. Subsequent ministers and USAID directors, had different views on the value of the DSE’s products; the highest value was placed on accurate and timely financial information, less importance was accorded to the activity monitoring and impact evaluation products.

In the chaotic environment of the Haitian public sector such turnover was particularly critical, in the absence of stable and formalized relationships either within organizations and their subunits, or among organizations in the public sector. These relationships were frequently personalized ones built between particular individuals. Thus if the actors changed, relationships, commitments, and exchange patterns all changed as well.

Second, the espoused value of the DSE’s outputs—what actors said they valued or wanted—differed from the real value as revealed by their actions. The planned improvements in the MIS and M&E capacity took at face value the ministry’s and the government’s desire to know what the concrete results of development expenditure were. Beneath the surface, such knowledge carried high risks for Haiti’s leaders, and for various actors in the sectoral ministries. In Haiti’s corrupt and resource-poor environment, development project funds end up being used for a variety of purposes unrelated to development; if the DSE performed its function better, the specifics of the diversion of resources and effort would be uncovered. So, not only were the DSE’s outputs of no use and not valued, but for certain actors, such as the sectoral ministries, they were a potential threat. For some actors inside the Ministry of Planning, the outputs were essentially irrelevant; it was the inputs that were of
interest. The project provided vehicles, supplies, and salary supplements for DSE staff. In an agency with an insufficient operating budget these were of more value than whatever the DSE could produce. Low levels of wages and salaries have been frequently cited as a barrier to sustaining performance in the public sector (see Klitgaard, 1989).

The one innovation that persisted past the end of the project was the microcomputer-based MIS. Significantly, the outputs of the MIS, financial reporting, were those for which stakeholders' espoused and real values did not diverge. Further, the MIS was a self-contained technical innovation that fit closely with existing and high-priority needs. Experience shows that such innovations generally stand the greatest chance of becoming institutionalized and sustained. Microcomputer systems are an excellent example of this kind of innovation. They can be introduced without necessitating sharp changes in existing practice; they often produce highly visible and near immediate increases in productivity; their power in handling numbers meshes particularly closely with a key interest of both host and donor agencies—financial management; and the equipment itself, both software and hardware, holds an intrinsic interest and attraction for many people. Therefore, it is not surprising that the DSE's MIS has been the single sustained result of the project.

NOTES

1. Detailed information on the project can be found in Brinkerhoff (1987) and Brinkerhoff with Grandpierre (1987).

2. The fall of the Duvalier regime in early 1986, eliminated the most flagrant abuses of the public trust and introduced selected amounts of transparency into the government system, but these major features of the public sector have remained relatively untouched.

3. The life-of-project funding was about $600,000 from USAID, with a Haitian government contribution of about $250,000. Initially designed as a two-year effort but only funded for one year, the project suffered implementation delays when USAID/Haiti experienced problems in obtaining the planned second tranche of funds. To compensate for a protracted period of underfunding and reduced level-of-effort, the project was extended an additional two years.

4. One component of U.S. foreign assistance to developing countries consists of agricultural commodities provided under Public Law 480. Within the law are several categories of assistance, ranging from concessional loans for purchase of commodities, to emergency disaster relief. Commodities furnished for disaster assistance and non-emergency food aid are distributed directly to those in need, through recipient country government agencies or private voluntary organizations. Commodities targeted for socioeconomic development are sold to the recipient country, which purchases them via a line of credit and then resells them on the local market. The local currency proceeds from these sales are placed in a separate account and programmed by the country, in some cases jointly with USAID, for development purposes.
5. Functional longevity does not necessarily equate with the persistence of one single entity, throughout. In Haiti's case, the first planning agency was established in 1963 as a national council: "Conseil National de Développement et Planification." This council was given ministry status in 1978, becoming the Ministry of Planning. In 1985, planning was briefly subsumed under the finance ministry, then returned to its autonomous status two months later. The Ministry of Planning was abolished in 1986 and replaced by the "Commissariat à la Promotion Nationale et à l'Administration Publique," which combined the planning and administrative reform functions. In 1988 the commissariat was disbanded to separate the two functions again, and planning was reconstituted as the Ministry of Planning and External Cooperation.

6. The DSE's performance failure was brought to a head by the planning minister's public commitment to the Haitian Government Cabinet to carry out 62 development project evaluations by the end of 1983, in response to pressure to demonstrate concrete results flowing from development investment.

7. Nicholson and Connerley (1989) elaborate on the failure to link organizational and management improvement interventions with the incentives that derive from the nature of the goods and services produced and from the operating environment. They term this inadequacy the "crisis in development administration."

8. In retrospect it could be argued that the government’s interest in the DSE Project was cynical from the start, and an example of the kind of resource control games or conflicts that are played out worldwide between donor agencies and poor countries. Developing country agencies may seek donor-funded projects not so much because they agree with, or want to achieve the objectives of those projects, but because they see them as added resources that can be used for their own ends. Haiti observers have noted the tendency of the Haitian leaders to engage in these games.

9. See Verspoor (1989) for an in-depth study of the adoption of innovation in development projects. The degree of innovation in the changes introduced is one of the key variables in project success and sustainable change.
Sustainable Reforms for National Agricultural Research: The Case of India

Arthur A. Goldsmith

World food security has, with the major exception of Africa, improved significantly in the 1980s. But the race between population and food supplies is far from over. Technological change in agriculture will, along with other factors, determine whether the race is won or lost. And the pace of technological change in any country is intimately connected to the quality and quantity of its technological institutions—laboratories, experiment stations, rural colleges and universities, and so on. The connection between a country's technological institutions and agricultural modernization has pushed institutional development for national agricultural science and technology to the center of donor attention in recent years.

Not long ago national-level farm technology institutions were considered of secondary importance by the development community. Global research centers, such as the International Maize and Wheat Improvement Center in Mexico or the International Rice Research Institute in the Philippines, seemed the engine of agricultural modernization. Following the formation, in 1971, of the Consultative Group on International Agricultural Research, headquartered at the World Bank, these centers have been generously endowed. They form an impressive worldwide network and have generated an abundance of new knowledge. But, the donors soon learned, this knowledge does not diffuse to poor countries automatically. There are too many unique growing conditions, differences in consumer tastes, and variations in farmers' resource base.
National research systems are still needed. They remain weak links in the international chain of agricultural technology innovation. Without strong national systems, the yeoman's job of adapting technology to each country does not get done. The development community has responded in the 1980s by sponsoring such activities as the International Service for National Agricultural Research and the World Bank's Special Program for African Agricultural Research. Building sustainable country-level institutions has proven a major challenge, however, especially in the sub-Saharan region. As Eicher (1989) points out, research managers in Africa seem to find it easier to raise funds from foreign donors than to mobilize domestic political support to pay salaries and operating costs. This dependency may only postpone the day of reckoning for many national research systems.

To gain some insight into how donor agencies might improve the odds for sustained innovation of farm technological institutions in the Third World, it is useful to turn to a "successful" case, to see what factors played the most important part in that achievement. This chapter looks at one such experience, that of India. The country is widely regarded today for its high capacity to create, adapt, and distribute agricultural knowledge (Ruttan, 1982). But this was not always true. Thirty years ago, before the so-called green revolution, many of India's agricultural institutions seemed moribund and inefficient. Major reforms were taken around 1965. They paid off handsomely in scientific productivity and technological innovation.

The Indian case is relevant for donors today, because USAID (or its predecessor organizations) and the Rockefeller Foundation were catalysts of change. Starting in the 1950s, these agencies proposed a great many ways to improve the performance of India's knowledge-generating institutions. Like so much contemporary technical assistance, their efforts seemed to be misadventures at the time. Indians could not, or would not accept most of the changes being pressed on them. The handful of foreign aid pilot projects that did get underway seemed to have little likelihood of diffusing more widely throughout the subcontinent.

Then, with little warning, the tide turned in the mid-1960s. Proposals that had been sitting on the shelf were dusted off and put into effect with enthusiasm. The resulting new structures and procedures have persisted on their own, with no significant backing from the American agencies, which pulled out of Indian agricultural development shortly thereafter. How did so remarkable a turnabout happen?

This chapter seeks the answer within the explanatory framework presented in Chapter 3. The focus will be on the national research system's environment, in particular, the level of demand for its outputs and the character of its stakeholders. It begins with a description of the system as it was at independence. The historical evolution of the reform effort
is then discussed, beginning with the unsuccessful pre-1965 period and followed by the successful post-1965 period. Finally, the critical changes in the organizational environment are analyzed.

**INDIA'S NATIONAL AGRICULTURAL RESEARCH SYSTEM**

Public support for agricultural research in India dates from the late eighteenth century when the Calcutta Botanical Garden was founded. The first agricultural college was set up in 18.6, and starting in 1905 the central government set aside funds for research, demonstration, and education in the provinces, supervised by full-time directors of agriculture. By the time of independence in 1947, a dozen or so central research institutes existed. (Many were independent and self-supporting through crop cesses.) There was also a patchwork of state-level research organizations. Over 500 scientists were associated with the Indian Council of Agricultural Research (ICAR), the research system's apex organization. A score of agricultural colleges had also opened their doors by that time, and they granted about 1,000 undergraduate degrees annually.

While rich in quantity, this stock of institutions and human resources was not employed efficiently (Goldsmith, 1988; Lele & Goldsmith, 1989). Most scientific investigations were far removed from the everyday needs of clients (especially small farmers). Students in the agricultural colleges learned theory at the expense of practical applications, while the professors did little research themselves. The research system as a whole had negligible impact on agricultural productivity. Food production increases, for example, had fallen behind the rate of population growth. To some extent this was due to the state of scientific knowledge at that time, and could not have been fully corrected through better organization and management (Pray, 1984). Nonetheless, American agricultural advisers, who began to arrive shortly after independence, identified three problem areas in the system that they thought could benefit from immediate attention.2

The first target was the way research was done. Following British norms, Indians emphasized basic science and played down applied work. This meant too little study of real production problems and too little field testing to see how new technology actually performed on the farm. Researchers rarely worked in teams, and no attempt was made to bring different disciplines to bear on technical problems. The research service was also bureaucratized, promotions being based on seniority not merit, which stifled creativity. The solution proposed by U.S. experts was to redirect scientists and make them more field-oriented. This would entail, among other things, the development of a cadre of permanent scientific workers with assured avenues of promotion and greater use of interdisciplinary research teams.
The second problem was the lack of a strong central organization to coordinate research. Much of India's investment in research was wasted because of gaps, duplication, and lack of follow-through. ICAR had been set up in 1929 to assure coordination, but it had failed to provide the necessary leadership. Self-financing committees for specific cash crops had proliferated since then, and had proven impossible to rein in. According to the U.S. consultants, the answer was to abolish these commodity committees and put them under the guidance of an enhanced ICAR.

The third concern was the weakness of higher education. Indian universities imitated the nonresidential London model. They served primarily as examining bodies for affiliated colleges, including the colleges of agriculture. Americans saw agricultural teaching as hamstrung by a rigid curriculum, the use of standardized syllabi, the practice of external examinations, and an overemphasis on lectures and rote learning. The agricultural schools also seemed to be stifled by external oversight from both university and government authorities. To remedy this set of problems, the advisers proposed that India learn from the U.S. land grant model. Higher education would be energized by greater emphasis on institutional autonomy, student and faculty responsibility, vocational training, and community service. Land grant universities had helped to modernize U.S. agriculture and, it was hoped, would do the same for India.

STATUS OF REFORMS: PRE-1965

American experts working in India championed these ideas all through the 1950s. The United States had established a Technical Cooperation Mission in New Delhi in early 1952. Just over two years later, the two countries agreed to the Agricultural Education and Research Project. To launch the project, they formed an Indo-American team of experts to compare the organization and operation of their respective technical institutions, and suggest improvements for India. The team's report (ICAR, 1955) made 1.9 concrete proposals, most related to the three broad themes mentioned above. This document crystallized institutional issues that would be debated in India over the coming decade.

Five U.S. land grant schools agreed to participate in their government's education and research scheme. Each was given responsibility for a different region of India. During 1955–56 alone, they had contact with 81 separate institutions. A "blueprint" for a rural university, modeled after the University of Illinois, was soon prepared for the state of Uttar Pradesh (Hannah, 1956). Yet, these reforms sputtered. The Planning Commission was reluctant to support more than one agricultural university.
States other than Uttar Pradesh were slow to come forward with proposals of their own. Even Uttar Pradesh took until 1960 to open the new campus. There was little movement in other areas, such as strengthening ICAR. American technical assistance seemed spread too thin to have impact anywhere.

Disappointment with the pace of progress led to the creation of another Indo-American team (ICAR, 1960). Its charge was virtually the same as its predecessor's, five years earlier. So were its proposals. They included suggestions: to engage teachers in scientific inquiry, to provide farms and laboratories to the agricultural colleges, to allow more electives for students, to reform the examination system, and to grant greater autonomy to academic staff. A change in donor strategy followed. The American contractors abandoned the regional approach, and started to work one-on-one with sister institutions in India. It was hoped that this would help to build up a critical mass of resources and get the process of institutional development off dead center.

The new strategy had some effect. Seven states drafted enabling legislation for agricultural universities over the next two years, stimulated in part by the carrot of USAID funds. But there was major opposition from the educational establishment, which objected to the principle of specialized, free-standing universities and which wanted to retain its near monopoly on higher agricultural education. Obstruction also came from radical and nationalist political elements, who were highly suspicious of all forms of American assistance, particularly in so sensitive an area as this.

In the meantime, the Rockefeller Foundation was encouraging ICAR to shift over to cooperative federal-state research projects, as practiced in the United States. The foundation had signed its own technical cooperation agreement (growing out of the first Indo-American team's report) in 1956. India gave it a relatively free hand to develop hybrid maize, a crop that Rockefeller scientists had worked on before in Latin America. The foundation introduced the American method of adaptive research, in which institutions of different jurisdictions banded together to tailor technical advances to regional conditions. Rockefeller officers wanted to demonstrate the superiority of this approach to crop improvement.

Indian research administrators and scientists were acutely sensitive to any implied criticism of their work. Maize was a minor food grain, so Rockefeller's experiment did not threaten any important faction within the agricultural science community. Crops besides maize were different. Indians, for instance, insisted on running the investigation of millet and sorghum their own way, ignoring specific advice to the contrary. Rockefeller researchers were able to release new maize varieties by 1960, far
outdistancing their counterparts working on other crops, and proving that the new methods indeed did work. Still there was no rush by Indian investigators to abandon familiar routines.

The foundation sponsored another review of the research system in 1963. This panel of experts went over much of the same ground the two earlier Indo-American teams had covered. They repeated many familiar propositions, such as removing agricultural scientists from civil service regulations, abolishing commodity committees, and starting over again with a new central organization to coordinate research at the state level. No immediate action was taken, however, and it seemed likely that these proposals would again languish. Too many entrenched interests within the agricultural bureaucracy itself feared any change in the status quo.

In short, American technical assistance for agricultural research and education seemed to be having little long-run impact as of the mid-1960s. A few institutions had been created or modified, but their environment seemed artificial and dependent on donor support. Backing from the immediate (i.e., Indian) environment was uncertain. The foot-dragging raised doubts in the international community whether even the tentative steps taken toward reform could be sustained. This was only one facet of a deep and pervasive skepticism about India's prospects, created by the food shortages looming at the time (Paddock & Paddock, 1967). Many observers doubted India had the will or the ability to take the steps necessary to forestall mass famine. Prospects seemed grim.

**STATUS OF REFORMS: POST-1965**

In fact, the situation was already beginning to turn around. The reasons had little to do with donor strategy, and much to do with internal politics (Varshney, 1989). India's prime minister since independence, Jawaharlal Nehru, had died in 1963. He was succeeded by Lal Badahur Shastri, who was less committed to industrialization, more interested in agricultural development. Shastri chose Chidambaram Subramaniam to head the Ministry of Agriculture. Subramaniam had no background whatsoever in agriculture, but this may have been an advantage, since he had fewer preconceptions about the subject and fewer ties to the agricultural establishment. A pragmatist by disposition, Subramaniam's first concern was to make agricultural science more effective and efficient (Subramaniam, 1979).

The new minister found out about the Rockefeller-sponsored review that had been completed a few months earlier. He resurrected the report and began to implement important parts of it. ICAR received greater funding power so it really could coordinate research undertaken by the
The Case of India

states, and got direct control of the national research institutes. Research functions were taken away from the commodity committees and transferred to ICAR. An agricultural scientist, not a career civil servant, was put in charge of the research council in 1965. ICAR, in turn, began to adopt, wholesale, the American style, central-state research framework that had been developed by the Rockefeller Foundation for hybrid maize. Wheat and rice, India's most important crops, were among the first to be set up within the new system. By 1968, there were 70 projects on this pattern operating in India.

The pace of agricultural university expansion also began to quicken. Three more schools were founded in 1962, another four in 1964 (Naik & Sankaram, 1972; Read, 1974). India's Education Commission came down in favor of this novel pattern of higher education, and recommended that teaching, research, and extension for each state be consolidated at the relevant campus. In 1966, ICAR assumed the responsibility for agricultural higher education, taking it away from the less supportive University Grants Commission. The total number of agricultural degrees awarded in India more than doubled during the decade. By 1974, the state agricultural universities had also acquired a significant research capability, and operated some 300 experiment stations.

Helping to drive these institutional innovations was the discovery overseas of semidwarf high-yielding varieties (HYVs) of wheat and rice. Indian scientists had been working on wheat and rice for decades, and had released several "improved" varieties since independence. Hitherto, new seed types produced stable output under conditions of low fertility with few cash inputs, but did not respond to fertilizer or intensive cultivation. The HYVs were different. Distinguished by short stalks, these hybrids could take heavy dosages of fertilizer without falling over. Their reported yields were extraordinary. HYVs would, of course, prove to be one of the century's outstanding technological breakthroughs. Expanded and reorganized scientific institutions were needed to get these new varieties into the hands of farmers quickly. This provided a cogent rationale for institutional reform, and also gave the new or refurbished institutions concrete tasks of major political salience.

Several macroeconomic and sectoral policies were initiated at the time that also had important fallout for the research and education system. At the end of 1965, Subramaniam announced a crash program to introduce the HYVs. Seeds, fertilizer, credit, and crop advisory services would be focused on larger farmers operating in irrigated regions, in the hope that this would have the quickest effect on production. Multinational corporations would be allowed to invest in the fertilizer industry, and private traders would be allowed to enter the fertilizer
distribution system for the first time. Agricultural price policy would pay greater attention to producer incentives. All these steps ameliorated the climate for farm technology institutions.

The rejuvenation of agricultural research has been sustained. This is not due to support from the original foreign sponsors, USAID and the Rockefeller Foundation. Neither agency ever devoted large amounts of resources, relative to India’s size, to building agricultural institutions in the first place. Over 20 years, all official U.S. aid to agricultural and veterinary colleges in India came to only $34 million, plus an additional $11 million in “counterpart funds” generated by concessionary food exports under Public Law 480. The Rockefeller Foundation spent less than $8 million on all its India agricultural projects. Moreover, both agencies pulled out of India altogether in the early 1970s—USAID, because of a diplomatic crisis during the second Indo-Pakistani war, Rockefeller, because of a change in strategy in New York. So foreign aid funds do not, and never did, constitute an artificial “life-support system” for Indian technical institutions, as they do in many countries today.¹

India simply carried through on its own many of the ideas originally suggested by American advisors. The improved status of agricultural higher education provides one illustration. There were nine state agricultural universities when USAID pulled out of India in 1972. Today there are 26, four having been founded since 1980. They train thousands of students, including hundreds at the doctoral level, and have been winning increasing financial subsidies from their state legislatures and from ICAR (Busch, 1988). Some 18,500 scientists associated with the schools are engaged in agricultural research. However important American “seed money” may have been in the beginning, this system of agricultural higher education has clearly become institutionalized with authentic national support.

The same is true of the research system per se. Domestic outlays for agricultural research in real terms doubled during the 1970s (Pardey & Roseboom, 1989). Today ICAR operates over 40 research institutes for agriculture, animal sciences, and fisheries—and employs some 4,000 scientists. A specialized Agricultural Research Service has been in operation since 1975, exempting scientists from normal civil service regulations. The central-state research mode, introduced by the Rockefeller Foundation in 1957, is followed in 85 projects, accounting for one-quarter of ICAR’s budget. The overall pattern owes much to American organizational models, the same ones promoted by an earlier generation of U.S. experts with little apparent response. As in the United States, the federal and state components now overlay each other, intersecting at many points, to create a dense institutional matrix. India may have dragged its feet about changing its research institutions in the 1950s and early
1960s, but since then the country has enthusiastically embraced those same changes.

The resulting system is not perfect. It has been faulted for neglecting water management, for emphasizing chemical inputs, for focusing on individual crops rather than farming systems, and for stressing high carbohydrate commodities rather than ones rich in protein. There are wide differences in quality among the state agricultural universities, and several are moribund. But the system is very good by comparison with its state 25 years ago. Cost-benefit analysis confirms this fact. According to one econometric study (Bal & Kahlon, 1978), the average internal rate of return to agricultural research was only about 10 percent from 1960–61 to 1964–65. This is far lower than what is usually found for agricultural research programs, and hints at major inefficiencies. After the start of the green revolution, the average return (from 1967–68 to 1972–73) more than tripled to about 33 percent.

The effect on productivity has been stunning for some crops. From a low point in 1965–66, wheat yields jumped 58 percent in five years. They climbed another 25 percent during the 1970s, and 25 percent more in the first half of the 1980s. Rice yields did not take off so dramatically initially, but today, output per acre is 80 percent higher than 20 years ago. Because of this green revolution, the foodgrain harvest rose from 70 million tons in 1965–66, to 100 million tons in 1970–71 and 150 million tons in 1984–85. This has by no means eliminated hunger or rural poverty. Still, after decades of flirtation with famine, the country is actually a small net exporter of foodgrains.

EXPLAINING THE SUSTAINABILITY OF REFORM

Why did the shift in attitude about institutional reform occur? How did indifference and even hostility toward donor ideas get transformed into enthusiastic support? There were two important changes in the immediate external environment that were critical for the newfound sustainability.

The first concerns the sudden rise in demand for the research system's output. The HYVs were in some senses a windfall for the research system, providing it with a ready-made product to be marketed to its clientele. Indian farmers had not been particularly receptive to previous varieties offered them, nor to associated "packages" of supposedly superior practices. There were good reasons for this "traditionalistic" behavior, as it was often misdefined. The best among the farmers got just as good yields, using old-fashioned methods, as the experiment stations did. When adjusted for risk, the innovations being promoted by the research system through the mid-1960s simply failed to generate suffi-
cient returns. It was difficult for the system to garner external support under these circumstances.

No such reluctance hampered the distribution of the HYVs, an activity that started in earnest during the 1966–67 crop season. India was lucky, in that several existing varieties of semidwarf wheat and rice could be transferred directly from abroad. No adaptive research was needed first. Farmers could go right ahead and plant imported seeds. They grew remarkably well. Yields were much higher than with older varieties. Word spread rapidly among the farming community about this godsend. Pending the mobilization of the indigenous seed industry, however, getting the new planting material was difficult. Farmers descended on the experiment stations, using various forms of subterfuge to try to obtain HYVs for their farms (Streeter, 1969). They were driven by both desperation and cupidity—back-to-back droughts in 1965–67 had cut many farmers' incomes, and had also stimulated agricultural prices and created new incentives.

The popularity and staying power of the HYVs is demonstrated by the rate of adoption. Semidwarf wheat spread the fastest. Released in 1967, it accounted for one-third of total wheat acreage after only three years, and for more than half the acreage after seven years. HYV rice has not been quite so successful. The initial varieties had poor cooking quality and were susceptible to disease. Rice growing areas are also more heterogeneous than the wheat belt. Lots of adaptive research was needed, and that took time. Nonetheless, by the mid-1980s half the rice acreage was planted in HYVs. There have also been significant inroads with other high-yielding foodcrops, such as maize, sorghum, and millet.

The surge in demand for the research system's output reinforced the second important trend affecting sustainability, the growing strength of two major stakeholder groups—agricultural producers and agricultural scientists. Around the world, producers are a key prop of national research systems. Through the 1950s, however, there was not a strong farm lobby in India (Weiner, 1962). The peasantry was quiescent, still repressed by traditional social structures and as yet untouched by government programs. Official economic plans thus emphasized industry over agriculture, and tended to treat the rural sector as a reservoir to provide or absorb resources as needed.

Shortly after independence, India launched its famous community development program to mobilize village India and, as one of many goals, to raise agricultural output. Although community development had disappointing impact on production, it did awaken villagers to the government as a source of advice and service, creating new institutional frameworks and generating pressure for more reform. There began to be a shift in political power from the urban upper classes to rural land-
owners (Rosen, 1966). Since the mid-1960s, agricultural producers (and not only the better-off peasants) have risen as one of the major "demand groups" in the Indian political economy (Rudolph & Rudolph, 1987).

The green revolution propelled this rural lobby forward by making farmers more secure economically, thereby freeing resources for political investment. It is a result that surprised many, for some early evidence seemed to show that the modern foodgrain varieties benefited only the few larger farmers, and marginalized the mass of rural residents by squeezing them off their land. This subject has been exhaustively studied. The worst fears about the green revolution's impact on poverty have apparently been laid to rest (Lipton & Longhurst, 1989). There has been some increase in relative income disparities, but nearly everyone, including landless laborers (whose labor is in higher demand), seems to have benefited with higher standards of living. The increased economic clout, particularly of the middle-sized farmers, has enabled them to rival urban groups in political influence in India (Nadkarni, 1987).

The HYVs and the green revolution also helped to raise the status and influence of Indian agricultural scientists themselves. After independence, technocrats had little effect on agricultural policy, which was dominated by ideological concerns. Landlords, moneylenders, and traders were believed to be so oppressive that ordinary farmers would not respond to technological opportunities, anyway. The agricultural scientific establishment itself was hidebound and satisfied with the status quo. All this changed during the watershed years of the mid-1960s. Taking the lead was the younger generation of scientists, many of whom had been trained in the United States. They were joined by some of their more senior colleagues, who had finally been convinced by the demonstrated capacity of modern research methods. The profession's new self-confidence and group consciousness led it to demand greater recognition (Anderson, 1983).

To the rest of India, in many senses the agricultural scientists appeared to be national heroes, who had rescued the country from all but certain famine and saved it from humiliating dependence on the United States for food. Indeed the bumper crops of the late 1960s actually enabled India to cut off concessionary grain purchases under U.S. Public Law 480, a step that no one anticipated even a few years before. From this point on, technocratic influence on Indian agricultural policy would be much greater. And, of course, one of the things that the technocrats wanted was increased outlays on agricultural research and education.

These two large stakeholder groupings, the peasantry and technocracy, thus found themselves bound by a common interest in institutional renewal. They also had new resources to press their cause. Their government, whose own legitimacy was menaced by the food crisis of the mid-1960s, had little choice but to respond positively to these demands.
Its older agricultural policies were bankrupt, continued reliance on American foodgrain was politically untenable, and the World Bank and USAID were demanding economic liberalization as a quid pro quo for any more economic aid. Nehru had already begun to tilt toward intensive agricultural development before his death; his successors picked up the pace. When the new strategy actually worked, it cemented support for the new institutional set-up that had emerged. There was no turning back.

India's experience illustrates the dynamic relationship that can exist between an institution's outputs and its stakeholders. Not only is it important that the stakeholders value those outputs, so they will provide inputs to the system, but those outputs can also increase the stakeholders' clout, so that the inputs they do provide have greater utility for the system. This relationship can shift in unpredictable ways to enhance sustainability.

The lack of sustainability of agricultural technology institutions in much of Africa is due in part to the low value of the systems' outputs (technology), and the lack of input (political demands and supports) of agricultural and technocratic stakeholder groups. It is instructive that the most enduring agricultural research systems in that region are in countries like Kenya, which have acquired high-demand technology and which have strong producer interest groups (Anthony, 1988). Donor institution building projects are unlikely to "have legs" in the absence of such conditions. Fortunately, as the Indian case demonstrates, even bleak situations can be reversed quite quickly by technological discoveries and domestic political mobilization.

NOTES

1. For greater detail on this case, see Chaps. 3–5 in my forthcoming book (Goldsmith, 1990).

2. U.S. advisers also had much to say about India's agricultural extension service and the community development program. They complained about the lack of focus on production and technology. Many of their ideas fell on deaf ears at the time, but have reappeared under different guises in the T&V system.

3. The World Bank has stepped in to replace the departed U.S. donors, and made many important loans for the agricultural sector. Even these are small compared to India's own mobilization of resources.
Sustaining the Performance of the Caribbean Agriculture Research and Development Institute

Marcus D. Ingle, Terry D. Schmidt, and Barton A. Clarke

In 1981 the Caribbean Agriculture Research and Development Institute (CARDI) was regarded by several of its member government and by the U.S. agency for International Development (USAID) as one of the weakest and least effective agricultural research institutions in the Latin American and Caribbean region. In 1990, though, CARDI is a dramatically different institution. In the words of the recent review committee, CARDI's image, which was at an all-time low in 1986, has been substantially refurbished and it is now seen by its owners and its main beneficiaries, the farmers, as a revitalized Institution which is performing the functions for which it was created. It has gained donor confidence and acceptance to a degree where funding has been secured for most of the projects identified in its work programme. Its well qualified staff are presently experiencing a high level of motivation and under the leadership of its energetic and respected Executive Director and his management team, CARDI is on its way to taking its place among the elite of Caribbean Regional Institutions (Sorhaindo et al., 1989).

This chapter tells the story of the revitalization of CARDI, the genesis of its adaptive research and development program, and how it found the path to sustainability. The story has two central themes, both intended to elucidate the sustainability framework presented in Chapter 3. The first is that institutional sustainability can be enhanced over time by improving the quality of the institution's outputs and demonstrating their value to relevant political stakeholders. In the CARDI case a donor-
supported development project was effectively used to enhance the sustainabilty of CARDI’s adaptive research and development program.

The second theme is an examination of the linkage between an organization and its host environment. Specifically, the CARDI case is used to demonstrate how the conduciveness of the proximate environment is essential to sustainability. The case also provides insight into how development projects can be designed and implemented to strengthen environmental conduciveness, and thus influence a key condition for sustainability (see Smith, Lethem & Thoolen, 1980).

**CARDI'S SETTING AND OPERATIONS**

**Political, Social, and Agricultural Problems in the Eastern Caribbean**

The small island nations in the eastern Caribbean face some unique agricultural and economic challenges. For decades, these nations enjoyed an attractive export market for sugar and bananas, the region's traditional crops. Since the late 1970s, however, Caribbean agricultural economies have suffered a large and continuing decline, mostly due to the steep drop in earnings from these traditional crops. Compared to 1965, sugar and banana exports have dropped by 60 and 50 percent respectively, and the trend has been down for other crops as well. These decreases are due to greater competition, declines in world prices, import substitution in industrial countries, and increases in the cost of inputs.

Agriculture remains vital to the eastern Caribbean economies, and makes a substantial contribution to the region's gross domestic product, employment, foreign exchange earnings, and food security. Because agriculture is essential to the regional economy, the countries there need to increase agricultural profitability if living standards are to be maintained or increased.

Over the past decade, as markets for sugar and bananas have declined, efforts have been made to diversify agricultural production into enterprises that would increase food security, reduce the region's huge food import bill, and provide export potential. An effective and sustained agricultural program is vital for developing and extending appropriate technologies to eastern Caribbean farmers. But mounting a broad-based agricultural program is expensive. Because the nations in the region are small, they cannot individually afford to develop and maintain the full cadre of technical experts required to conduct quality research and development. Montserrat, for example, has a population of under 12,000 people, and the entire agriculture ministry employs less than a dozen professionals. CARDI was created to deal with this problem.
The Major Goals of CARDI

Set up in 1975 to serve the 12 member states of the Caribbean Community (Caricom), CARDI's mission is to contribute to agricultural development through the generation and dissemination of appropriate technologies that benefit the Caribbean people. CARDI member countries include four so-called medium developed countries, which are Barbados, Guyana, Jamaica, Trinidad and Tobago; and eight less developed countries, Antigua & Barbuda, Belize, Dominica, Grenada, Montserrat, St. Kitts/Nevis, St. Lucia, and St. Vincent and the Grenadines.

CARDI's operational strategy is based on two major premises. First, obsolete technology is a major constraint to improved productivity and greater efficiency in Caribbean agriculture, and second, CARDI will supply this technology in key crops and animal production enterprises, especially in the lesser developed member states. The primary users of technology generated by CARDI are the member countries' national research and extension services, their producer and marketing organizations, and their farmers. Most of the latter people cultivate small parcels of land where yields are low and inputs minimal.

CARDI's work supports the Regional Food and Nutrition Strategy, the region's major agricultural policy instrument. The institute's activities specifically further these key strategic goals:

- to achieve regional food self-sufficiency by reducing dependence on imported food
- to increase foreign exchange earnings through increased exports of food commodities
- to improve income and productivity in the agricultural sector.

THE PROJECT: FARMING SYSTEMS RESEARCH AND DEVELOPMENT

USAID's early experience with CARDI was disappointing. After extensive internal discussion, the agency decided nonetheless to pursue a follow-up effort with CARDI. The result was the Farming Systems Research and Development (FSR/D) project, a five-year effort with a $13 million budget, 65 percent provided by USAID and the remainder by CARDI and Caricom. The aim was to "develop an effective and sustainable Farming Systems Research and Development Program in CARDI that responds to the agricultural needs of participating countries." CARDI's long term capacity to affect agricultural development in the eastern Caribbean was thus a particular concern of USAID from the very beginning. The agency also was looking for a project design that would launch the Caribbean on a long lasting course of agricultural
Table 12.1
Chronology of CARDI and Related Projects

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>* CARDI is established.</td>
</tr>
<tr>
<td>1978</td>
<td>* First USAID assistance to CARDI: project to improve links between researchers, extension services and farmers.</td>
</tr>
</tbody>
</table>
| 1982 | * First USAID project assessment: Little progress, serious organizational problems.  
      * Design of new FSR/D project. |
| 1983 | * Farming Systems Research and Development project agreement signed, and project start-up. |
| 1984 | * Contracts assigned: technical assistance in R&D and institution strengthening. |
| 1985 | * Strategic planning workshop.  
      * CARDI in financial trouble.  
      * Renegotiation of financial terms of FSR/D project. |
| 1986 | * Mid-term evaluation of FSR/D project  
| 1987 | * Meeting suggesting a changed focus for CARDI due to changes in the USAID environment.  
      * Caribbean Agricultural and Rural Development Advisory Service (CARDATS) becomes part of CARDI. |
| 1988 | * Phase down and evaluation of FSR/D project.  
      * CARDI strategic plan completed incorporating new program management system. |

profitability. Because of limited expectations during any project term, the agency did not want to consider any approach that eschewed long-term goals. Table 12.1 shows the chronology of CARDI and the FSR/D project.¹

The project was identified and designed by CARDI staff, USAID, and a consultant team working in collaboration; in essence, this process operationalized the SCOPE framework's interactive management strategy. Termed the structured flexibility approach, it became a keystone of the FSR/D project and was integrated into CARDI itself as the project con-
Performance of the Caribbean Institute

Structured flexibility combines elements of both "blueprint" planning and "learning process" efforts to build problem solving capacity (Brinkerhoff & Ingle, 1989). This approach provides the basis for the programmatic and financial accountability needed to attract resources from international donor agencies and developing country bureaucracies; at the same time, it facilitates an interactive management style that can take into account uncertain and changing environments and the values of the various actors. Collaborative "learning by doing" characterized the design and implementation of the FSR/D project.

Three interrelated outputs were expected: (1) technology generation, the production of viable, farm-tested technological improvements in crop, livestock and crop/livestock systems; (2) technology transfer, the development of methods for transfer of improvements to extension officers and to farmers; and (3) institutional strengthening, the development and strengthening of organization and management systems within CARDI to enable the institution to effectively conduct farming systems research and development and other technical programs (CARDI, 1984). An important feature of the FSR/D project was the sustainability of both the host organization and the program was an explicit goal from the outset.

In July 1984 implementation began. CARDI assigned a project manager, headquartered in St. Lucia, to be responsible for technology generation and transfer. Institution strengthening was put under the management of CARDI's executive director. A curious loop in reporting responsibilities was created when the project director became CARDI's deputy executive director. The executive director then was accountable to his deputy in the latter's capacity as project manager.

The organization of the project consisted of two sub-regional support units, plus a country team leader in each of the participating countries. The complexity of this structure is reflected in Figure 12.1.

Characteristics of the Farming Systems Research and Development Methodology

The assumption behind the FSR/D project is that farming is a system, composed of a complex interaction among the physical, socioeconomic and political environments, and the available production resources at the farm level and the farm household. The complexity of the system requires a dynamic technology that can capture and analyze pertinent information (George, 1986). The following features characterize the project's method:

Farmer Participation

The farmer is viewed as a member of the farming systems research team. He has essential intuitive knowledge of how farming and pro-
The Objective is Alternative Production Systems

Applying farming systems research methods, the technology options that are generated can include management, inputs, and components of existing production systems. The outputs of the research is not just a production system component (such as a new crop variety or a new veterinary product) but rather an alternative set of technological options that encompass the production system as a whole.

Evaluation of Alternative Production Systems Is Based on Farm System Performance Criteria

While the new technology is generated at the production system level, its evaluation is based on how the farm performs. The question is not
Performance of the Caribbean Institute

how the new technology functions in isolation, but rather how it fits into existing practices and whether the farm functions better with or without it.

Linkage with Other Agricultural Institutions Is Essential

To work, the methodology requires several types of linkages. Linkages are needed: (1) to commodity and discipline-oriented research organizations to receive new technology and to give guidance about what type of research should be done; (2) to agricultural policy institutions to receive information on credit and marketing, and to give recommendations on possible policy changes; and (3) to extension agencies to transfer knowledge and to assist farmers in evaluating it (Parasram, 1986).

Strategy Used for Institutional Strengthening

Strengthening CARDI was accomplished mainly via periodic short-term technical assistance by an ongoing team of consultants. The following areas became the general framework for technical assistance during the project:

1. Assist in improving CARDI's internal management systems in the areas of project management, personnel management, communications, internal audits and general management (in cooperation with a local consultant group carrying out an organization and methods study).

2. Design a financial planning and budgeting system, using it on a pilot basis.

3. Initiate the process of developing a strategic planning and management system for CARDI.

4. Assist CARDI's executive director in establishing a research advisory board, confirming that meetings were held.

5. Assist CARDI in strengthening links with other local and international research and donor organizations, development of new links, and securing funding for CARDI core and program activities.

Much of the early effort was spent on establishing a planning, budgeting, monitoring, and reporting process for the project. Activities included facilitating annual planning workshops using an action-learning approach, adaptation of computer systems, role clarification exercises, and development of procedures manuals.

The project manager was strongly committed to improving CARDI's management capacity, and decided to use structured flexibility and action-training as the organizing themes during an implementation start-up workshop with project staff in early 1984, and in later workshops as well. Such sessions introduced new management tools and applied them
The Faltering of the CARDI Program in 1985

The project was implemented during a period of economic uncertainty in the Caribbean agricultural environment. The institute was funded by member country contributions, but because of the stagnation of the region’s agricultural economy, and the loss of faith in CARDI management, the countries were not timely in making their full contributions. By mid-1985, the amount of payments in arrears had reached nine months’ worth of operational budget! As a result, the institute financed itself at a high interest through bank overdrafts. There was a real threat of insolvency.

The original project-funding formula called for CARDI to pay an additional 20 percent of project costs from its core budget each year, until by year five, it would have been paying all project costs. This funding provision, apparently inserted at the last moment during project negotiations, caused bitterness and resentment from nonproject staff, who claimed that the FSR/D project was bankrupting the institute. Indeed, the requirement was onerous. Had it not been renegotiated in mid-1985, the required contribution would have drained CARDI. This factor caused nonprofit participants to regard the project dimly, and not to fully appreciate its innovations.

Retrieving CARDI’s Credibility

During this period, two external studies pointed to CARDI’s weaknesses and suggested an urgent need for reorientation. The first recommended a refocused CARDI aimed at meeting the needs of the region’s less developed countries. The second study echoed this recommendation, but went further in calling for such changes as: replacing the executive director, substantially redeploying staff away from headquarters to the smaller islands, and developing a coherent strategy. In response, a small task force, composed of CARDI and technical assistance staff, developed a reorganization plan. It was implemented.

In late 1986, CARDI hired a new executive director, who provided critical leadership skills during the difficult job of redeploying staff and reorganizing the institute. Two years later, the financial picture had improved substantially. The budget had been cut, country contributions were more timely, and CARDI credibility was much higher, largely because of management improvements.
THE OUTCOMES OF THE FARMING SYSTEMS RESEARCH AND DEVELOPMENT PROJECT

The Accomplishments of the FSR/D Project

While noting the difficulties in starting up the FSR/D project, and in the subsequent amendments to its scope and planned outputs, a 1986 mid-term evaluation concluded that good progress was being made toward objectives (Carroll et al., 1986). The evaluation also recognized the impact of the structured flexibility approach on improving CARDI's managerial capacity and performance, that added to the project's success.

From the perspective of late 1988, with the project winding down, its contributions became clearer. Here are some of the major ones:

Development and Refinement of a Highly Structured Annual Planning Process

In each of the participating islands, local project staff designed and conducted periodic workshops. The outputs of these workshops then served as input to early regional sessions, when all parties reviewed overall progress and negotiated a plan for the next year. This process evolved over the life of the project, and during the last two years was expanded and used institute-wide (Dyer, 1987).

Building Project Staff Skills in Planning and Implementation Management

Project staff learned new skills and developed norms for organizational interactions that emphasized openness, collegiality, and responsiveness.

Development of Microcomputer-Based Management Systems to Support This Implementation Mode

The system aggregated activity plans into a master workplan that could be completed and shared with CARDI top management and field staff throughout the member countries in a single week. The system was an operational manifestation of structured flexibility. Again, this system began with project technical activities and later expanded to be used institute-wide. It was a key to integrating a program spread over a wide geographic arena (Berge et al., 1986).

Assisting in Developing a Reorganization Plan and Shifting to a Program Management Mode

Outside studies during the project pointed to CARDI's weaknesses; and a reorganization plan was developed. In response, this plan entailed staff cutbacks, personnel redeployment, and cost cutting.
Training Institute Senior Management Staff

Workshops were held for senior management and CARDI representatives, the highest CARDI authority in each country. A special training workshop was conducted for the three program leaders.

Assisting in Developing a Renegotiation Strategy

Financial difficulties required CARDI to redesign and renegotiate the FSR/D project in mid-1985. Consultants developed a quick financial report to pinpoint CARDI's financial status, prepared alternative cash flow projections, and helped prepare the proposal document that was accepted by USAID.

Developing a Strategic Plan

The management consultants in charge of institution strengthening, played a major role in helping the institute prepare its first strategic plan. This plan gave CARDI new credibility with prospective donors.

Funding Assistance

New donor contacts were developed and several new project initiatives undertaken.

Improved Relationships with Ministries of Agriculture

The project enabled CARDI to be more responsive to country need's. During the project, CARDI evolved an annual joint planning process with the ministries, in which they jointly identified priorities and needs and collected data. By 1989, CARDI was much better integrated into the national research planning systems of all states in the Organization of Eastern Caribbean States (OECS).

Strategies for OECS Diversification

The heads of government of the OECS asked CARDI to develop strategies and project proposals for crop diversification in the Eastern Caribbean. Many lessons learned in the FSR/D project are reflected in these strategies.

The Impact of the FSR/D Project

The original project design anticipated that at the end of the project, farming systems research and development would be a stand-alone program; however, something more far-reaching happened. The project did survive in CARDI, but as an integral part of the methodologies and mechanisms of other programs rather than as an independent entity.

While not initially intended that way, many of the project management
innovations served as the test-bed to develop systems and procedures for institute-wide use. The learning experience gained from the FSR/D annual planning process and workshops benefited the institute as it adopted a similar annual planning process. The basic monitoring form, developed for the FSR/D project, evolved into an institute-wide form called the Program Activity Record. CARDI unit heads in the Caricom countries not served by the farming systems project, and other senior managers were trained in the FSR/D methodology so it could be represented in other CARDI activities. What was once the FSR/D project became the fundamental component of the Technology Adaptation and Transfer Program, which has also absorbed the CARDATS project discussed below.

**New Projects: Sustaining the FSR/D Approach**

The Caribbean Agricultural and Rural Development Advisory Service (CARDATS) project was formerly administered by the Caribbean Community Secretariat. In July 1987, the heads of government mandated that CARDATS become part of CARDI, improving many facets of institute's capacity.

New donor funds were provided for R&D and for research in farming systems research methods. Many of the FSR/D project innovations, such as target area and farmer selection, agro-ecological suitability, market analyses, cost of production analysis, and techniques for alternative technology identification and selection, have been incorporated into the strategies and project proposals for crop diversification in the OECS. These strategies and project proposals were prepared by CARDI at the request of the member countries—evidence of the credibility the program has acquired in the region. High performance has earned strong support from key decision makers.

**ISSUES AND LESSONS LEARNED**

**USAID Policy and the FSR/D Project**

Changes occurring in the donor agency had implications for CARDI, and raise some interesting sustainability issues. By year three of the project, casual discussion had begun between CARDI and USAID concerning possible follow-on projects. Two important policy themes were emerging in USAID. First, there was strong emphasis on the private sector's role, with a tilt towards agricultural export. CARDI was told clearly that if it wanted new funding, it would have to gear its proposals accordingly. This meant realigning the current FSR/D project. CARDI
responded, to some degree, by putting more emphasis on mango and passion fruit.

Although such changes were undertaken so that CARDI could position itself to meet USAID's expected requirements; they were strategically sound, independent of the donor's private sector and export emphasis. The strategic plan developed a year later confirmed this. However, if USAID had pushed for more changes, forcing CARDI to use additional resources in response, it is questionable whether that investment would have paid off.

The second theme at USAID was that farming systems projects began to lose favor. The new emphasis at the agency was on networking (Plucknett & Smith, 1984). Nevertheless, the farming systems approach in CARDI was maintained, not in the form of a specific project, but of methods applied to ongoing activities. Indeed, one of CARDI's three program areas drew heavily on the insights developed in the earlier FSR/D project.

The Sustainability of the FSR/D Project

As of fall 1988, CARDI has made significant progress, but still faced some challenges. Its management capability was substantially strengthened at all levels; and the move to a program mode with clear priorities gave CARDI clearer focus. After its decline during the reorganization, morale improved. The planning and monitoring systems, although not totally institutionalized, were functioning. The quality of CARDI's publishing and external outreach improved considerably. Some features of farming systems research and development were well integrated into CARDI, although others had not taken root. This was true of both the research methods and the institutional strengthening additions.

The CARDI case directs attention to these critical sustainability issues:

**Responding to Changing Donor Policies That May Threaten Funding**

When USAID policy shifted to emphasize agricultural exports, CARDI was strongly encouraged to establish a capability to support export-oriented R&D. They did so, and fortuitously it fit with their strategy, as later identified in their strategic plan.

**Introduction and Implementation of New Management Systems:**

*Making Users See Them as Useful Tools, Rather Than as Burdens*

The introduction of the annual Program Activity Record was considered "paperwork" by many of the scientists even though the records called for nothing more than a good research plan. Perhaps the real
issue here was the difficulty of bringing new standards of accountability to an environment that had long enjoyed autonomy.

Structuring of Technical Assistance Projects to Decrease the Divisiveness They May Introduce into Host Organizations

Those involved in the FSR/D project had access to computers, equipment, and opportunities that other staff lacked, which created some jealousy. Perhaps a more explicit strategy to share project benefits would have assisted in integrating the project into the organization.

Determining the Management of an Institutional Strengthening Effort

If a technical assistance project involves a limited technical component and an institutional strengthening component that cuts across an institution, careful thought should be given to who manages which parts. The strategy for decisions about the respective budgets should be made explicit.

The Future Priority of the Institutional Strengthening Effort

Some of the improvements introduced during the project paid off handsomely; some new systems were just beginning to operate at project completion. Certainly CARDI required more institutional strengthening as it moved to the new program mode. The central problem of CARDI now is to ensure that continuing investments will be made to improve management and management systems, especially when they are not donor-funded. The risk is that the FSR/D methods could regress over time, and staff would return to old ways requiring less effort and resources.

Sustainability Lessons

Despite the lingering presence of critical problems at CARDI, some important sustainability lessons can be drawn from the case. These lessons give additional insight into the design and implementation of projects for sustainability, and validate elements of the SCOPE model.

1. Institutional strengthening activities should be not directed just at internal improvement, but at helping the organization develop the capacity to look externally, and to better understand and manage the external context, particularly where tasks are complex and sources of support are highly varied. The strategic plan was perceived by CARDI staff and donors as an important tool in this regard.

2. The quality of an organization's technical work can be no greater than the quality of its leadership and management systems. To the extent
that the latter are weak, the technical work will tend to be unfocused and not user oriented (see Kiggundu, 1989).

3. Technical specialists can be trained to be good managers, provided they have reasonable interpersonal skills and are comfortable dealing in an open-ended, systems-oriented environment. If they lack these initial attributes, training is not likely to develop them.

4. Whatever the focus of the technical assistance activities, there must be internal commitment and ownership for it to be effective and sustained. When key actors seriously want the technical assistance, they will create the time and energy to be involved, and will continue with the effort after the consultants depart (see also Buyck, 1989).

SUMMARY AND CONCLUSIONS

This chapter examined CARDI's sustainability from the vantage point of two themes. First, an interactive design and implementation management strategy, structured flexibility, contributed to the establishment of a sustainable research and development program because it facilitated a match between CARDI's task environment and the way the institute was managed. The words of CARDI's director sum up the nature of this environment:

The Institute is asked to provide a "fire-fighting" service for unusual problems cropping up from time to time. We must service the needs of established commodities for new varieties and new plant protection methods, but at the same time explore the suitability of entirely new crops. And all this in a diverse and rapidly changing economic environment, in which many traditional crops are declining and farmers are wondering what they must do to survive. A major task therefore is to keep in touch with farmers and other organizations that serve them (Dyer, 1988).

Second, the conduciveness of a research and development project's host institution (or proximate environment) is an important factor contributing to sustainability of activities. The analysis indicates that a project, although initially targeting one part of an organization, can successfully induce performance improvement in the rest of the organization. The mechanism used for doing this at CARDI was the FSR/D project's institutional strengthening component, based in St. Lucia and specially targeted to institutional development at the headquarters in Trinidad and Tobago.

The sustainability success of the CARDI case is made more vivid by the contrast between the apparent hopelessness of the situation in 1981 when the project began, plus the financial crisis of 1985, and CARDI's current status. The institute's record also points out that the development
project mode itself need not be a source of institutional unsustainability, as some have forcefully argued (Korten, 1980). Rather, the issue is how projects are conceptualized (Rondinelli, 1983), and how they are designed and implemented under various sets of conditions (Brinkerhoff & Ingle, 1989; Hage & Finsterbusch, 1987).

As a result of the observations in this case, there is a strong argument for two sets of sustainability factors to be added to the standard project design and implementation process. In the first place, specific attention should be given to benefit flows to client groups, that are intended to continue after the project, which means institutional mechanisms or capacities must be developed in support of these benefit flows during the project.

A second dimension that should be added to conventional project design and implementation is institutional development with sustainability as the objective, as contrasted to implementation performance (Ingle, 1979; Brinkerhoff, 1986; Israel, 1987). In both of these areas, practical techniques and experienced practitioners already exist. What is lacking and needs immediate attention by policymakers and development executives, is higher commitment and priority to the sustainability dimension of development efforts as evidenced in policy directives and resource allocations.

NOTES

This case draws on a variety of internal documents written by the authors, all of whom were directly involved in CARDI's institutional development. The authors recognize the assistance of Janet P. Stauss in editing this chapter and coordinating the writing team.

1. USAID assistance to CARDI began in 1978 with a four year, US $2 million project designed to build better linkages among the researchers, extension agents, and farmers in order to generate improved agricultural technology. Under this project, CARDI established satellite field offices in each of the Caricom islands and conducted extensive farm household surveys, but made little progress building linkages. When USAID and CARDI began discussing possible follow-on projects, it was clear that USAID staff members supported agricultural research and development activities in the region, but were concerned about CARDI's long-run sustainability. CARDI officials, though committed to building the institute's capability, were sensitive about external interference in their internal management matters.

2. See Halpern et al. (1988) for an elaboration of the form that these factors, and others, may take at various stages of the project design and implementation process.
Training and Visit as an Approach for Sustainable Agricultural Extension: Applications in the Philippines

Daniel J. Gustafson

Analysis of the Philippines National Extension Project (NEP) provides an opportunity to examine management strategies for agricultural extension development. This exercise sheds light on the utility of the SCOPE framework in determining critical elements in the sustainability of extension systems, and highlights sustainability issues of the training and visit extension system (T&V).

T&V is an organizational and managerial approach whose purpose is to develop a professional extension service capable of providing farmers in developing countries with usable technical advice. The World Bank has financed more than 90 projects based on this approach, and it has been adopted in dozens of countries in Asia, Africa, and Latin America. Efforts have been made to apply the T&V principles to programs in health, population, and nutrition (Heaver, 1984) and other types of education services (Israel, 1987).

Most of the discussion of the strengths and weaknesses of the T&V system has centered on specific features of the principles and their practical implementation, such as the exclusive attention of extension to technology adaptation and transfer, the interaction with researchers, the participation of farmers in the system, and others. The issue of recurrent costs has been raised by several authors (Howell, 1984; Roberts, 1989), as well as broader linkage considerations with the environment (Pickering, 1983), but little explicit attention has been given to the issue of institutional sustainability of T&V schemes.
Although it is difficult to lump all T&V projects together in support or criticism of the "system," one of the major features of T&V has been its emphasis on a set of standard principles; considerable debate has arisen on necessary or permissible modifications of T&V (see, for example Blum & Isaak, 1988). The real test of sustainability, of course, does not relate to the general principles, but to the success of a specific organization in providing a continued flow of benefits sufficiently well-valued to ensure continued inputs, specific strategies for translating capacity into performance.

The Philippines NEP, which adopted some, but not all, T&V principles, provides a good test case that facilitates identification of the critical sustainability elements of T&V. This chapter first presents an overview of T&V in general, followed by a description of the Philippines project. The T&V principles are then examined in light of the SCOPE framework, followed by an analysis of the Philippine experience, highlighting the implications of the T&V modifications.

**TRAINING AND VISIT EXTENSION**

The importance of agricultural extension in developing, conveying, and adapting information that farmers need to increase agricultural productivity is widely recognized. The ability of extension services in most developing countries to effectively perform that responsibility is weak. The typical problems connected with extension have been summarized by Lele (1975:62): "Extension agents are few and far between, ill-paid, ill-trained, ill-equipped with a technical package, and consequently very poor in quality. That the farmer often knows more, at least about what is wrong with the new innovations, and that extension agents often do not follow their own advice have become parts of a folklore of extension in developing countries." The T&V system was designed to rectify this situation by providing a method for organizing and managing extension. Its philosophy puts the farmer and his constraints, abilities and needs at the center, and attempts to mobilize the extension apparatus and research system to service him (Pickering, 1989:5). The T&V management principles allocate precise responsibilities, carefully time activities, and concentrate on a few activities at a time. This system, described in detail by Benor and Harrison (1977) and Benor, Harrison and Baxter (1984) aims to overcome the weaknesses of traditional agricultural extension services by insisting on the following principles:

1. Professionalism of a well-trained staff, who, in contact with researchers, provide reliable technical recommendations.

2. A single line of command with all extension staff responsible to a single authority.
3. Concentration of effort, in that extension agents dedicate all of their time to extension, avoiding other regulatory, financial or political responsibilities.

4. Time bound work based on a schedule of regular visits to contact farmers, and regular training of extensionists.

5. A field and farmer orientation that focuses on the farmer and his or her problems, abilities and constraints.

The principles are seen to apply anywhere. "The essence of the system is that it is sufficiently flexible to be used effectively in any type of farming under any conditions" (Pickering, 1983:7). One project evaluator, in an internal World Bank document, went so far as to state that T&V is "the only reasonable organizational pattern and approach to extension." Bennor (1987:138), the architect of T&V, has stated, "To be successful, the T&V system must be adapted to fit local conditions. However, the flexibility that enables successful adaptations to be made in the system does not allow for adoption of its basic principles." In other words, procedures, such as the frequency of visits or the use of contact farmers, can be adjusted, as long as the fundamental precepts are adhered to.

T&V was first tested in Turkey and then adopted widely in India and Southeast Asia in the middle and late 1970s. The system produced good results in India, where conditions were particularly favorable. Extension had been a weak link in the agricultural service system, marketing systems were relatively good, inputs were available, and technical recommendations existed which had not reached the farmer (Pickering, 1983:11). This was particularly true for producers who had stable access to irrigation, but limited access to modern technology. Although not without implementation problems or variations between states, once the extension service was reorganized along T&V lines, yields went up, and early success helped solidify commitment to the improvements. In areas where the conditions are less favorable, particularly in Africa, the results have been mixed.

It is evident that all three foundations of SCOPE are applicable to the discussion of agricultural extension systems in general, and of the T&V system in particular. Extension is clearly only one complementary component within a complex system of agricultural services necessary to increase agricultural productivity and development. These services, in turn, are part of a larger and more complex agricultural system. It is widely recognized that consideration of the entire system, both institutional and ecological, is necessary for sustainable change to take place.

The premise of contingency theory, that the most efficient structure or management style is contingent on various factors, is particularly relevant to the discussion of the T&V system, and would seem to fly in the face of the system's purported general applicability. To what extent is it possible to have universal organization or extension management
principles, and to what extent is flexibility either permissible or necessary for a particular T&V-based system to be successful? Although acknowledging the need for some adaption, the basic strategy of T&V is far more related to adherence to rigid organizing principles than to contingency considerations.  

As applied to T&V extension projects, the political economy aspects are present in the importance T&V places on linkages with research, the farmer, and the concomitant changes required within the bureaucracy for the system to succeed.

Perhaps the most valuable aspect of the SCOPE framework in analyzing the T&V organizational system lies in its discussion of strategies for translating capacity into performance. Since T&V represents a set of principles for organizing and managing agricultural extension, what SCOPE has to say about appropriate management strategies for different contingencies should reveal important properties about the T&V system, and its strengths and weaknesses.

The strategy for translating capacity into performance can be seen as the crucial element of the T&V principles. How this was accomplished in the Philippines is described below.

THE PHILIPPINES NATIONAL EXTENSION PROJECT

The Philippines NEP was launched in 1979. At that time the problems facing agricultural extension in the country were similar to those experienced elsewhere. There were fifteen separate government ministries and agencies that provided some type of agricultural extension, much of which was organized along commodity lines. Agricultural productivity was very low relative to neighboring countries and serious nutrition problems existed. The reasons the extension service was ineffective included the following:

1. field staff lacked practical training and knowledge of extension methodology;
2. there was a serious shortage of equipment and facilities for field training of staff and demonstrations of improved technology;
3. field staff spent only 30 to 50 percent of their time with clients, with excessive time being spent on reports, and they traveled on unreliable public transportation;
4. the links between research and extension were poor;
5. only a small proportion of farmers received extension coverage;
6. there was no clear line of command from the national level down to the field.

Certain conditions of the existing system were, however, very positive; the ratio of extension staff to farmers was very favorable, about 1:270;
Applications in the Philippines

roughly 90 percent of extension field staff had tertiary degrees; and a high standard of agricultural research and well-founded technological packages existed for the main crops (rice, and to a lesser extent maize).

The World Bank project sought to improve extension and contribute to higher agricultural production and socioeconomic well-being through four sets of activities:

1. Improving the organizational structure of the extension service to create a unified system with close research-extension coordination;
2. Supplying vehicles, equipment, and buildings;
3. Improving extension methodology, along T&V lines;
4. Increasing staffing and improving training.

In March 1979, a modified T&V system (known originally as the Extension Delivery System-EDS) was introduced in pilot applications in one district, in each of four regions of the country. In October of that year the pilot applications were extended to one district in each of the remaining eight regions. The methodology was expanded gradually throughout the country; and by the end of 1985, 52 percent of the villages were covered by the new system. All villages are expected to be covered by 1990.

Enough characteristics were retained of T&V to allow participants to call the Filipino system a modified version (Rentutar & Aquino, 1983). Within the Ministry of Agriculture, all field programs were regionalized, with three tiers of responsibility, at the regional, provincial, and municipal levels. This provides for a single line of command, but with a break at the region. The regional office transmits or formulates policy guidelines and is responsible for the allocation of funds. The planning and staffing decisions on how to implement various programs takes place at the provincial level. The formulation of monthly and annual work plans is done by the field level technicians, who have a considerable amount of freedom in defining their targets. These plans are expected to be formulated incorporating the participation of local leadership.

At the field level, three types of extension agents operate: farm management technicians, home management technicians, and rural youth development officers. The ideal ratio within the system for these technicians is 10:5:3. One of the major modifications from the T&V principles is the varied professional responsibilities of extension workers. In this regard, the Philippine system has been described as having a community and family approach rather than a crop advisory approach (Nagel et al., 1984). The field level technicians do not focus exclusively on agricultural technology transfer and adaptation, but cover other areas such as credit, nutrition, rural youth clubs, and producer organization.
According to an evaluation of system within one region, there was a high degree of coordination and teamwork among the three types of agents (Nagel et al., 1984:67).

Each of these technicians visits “contact leaders” according to regular schedules, although the frequency varies according to technical areas: farm leaders are required to be visited weekly, home leaders fortnightly, and youth leaders, monthly. In the Nagel study, 44 out of 81 technicians reported visiting their contact leaders more frequently than required (Nagel et al., 1984:81). The number of farmers covered by each technician varies from about 150 to 200, which allows for these high frequencies.

Selection of contact leaders can either be by election or by appointment. Very frequently these individuals are present, or former village officials, who serve as a link between the government agencies and the community in agricultural development activities. As such, these individuals often see themselves as village leaders rather than “contact leaders” in the T&V sense, and many do not appear to understand their role in this regard (Nagel et al., 1984:149). This dual role may cause confusion regarding technology adoption and dissemination roles. However, given the broad mandate of Philippine extension, channels of communication have been emphasized that closely follow existing patterns.

Training of field staff is not as systematic as visits, and in general the level of support of the field staff, including coverage by subject matter specialists, is well below that envisioned in the T&V management principles. Job satisfaction of technicians has been evaluated as high. The Nagel study found that two-thirds of the technicians interviewed reported increased job satisfaction after the project.

Overall, the project proved quite problematic. It was rated by World Bank staff as having “major problems” throughout 60 percent of its 1979–85 implementation period. According to one internal bank document, the project succeeded only to a limited extent in introducing T&V, due to resistance on the part of the Ministry of Agriculture. A reorganization of the ministry interrupted the established line of command and existing commodity extension services were never unified. A hiring freeze and budgetary cutbacks precluded increasing extension staff as planned. Only 80 of the projected 280 subject matter specialists were added, and 318 of the projected 1,000 additional farm management technicians were hired. Even with a two-year extension, the project disbursements totaled only $20 million of the original loan amount of $35 million.

Although not all aspects of the project were successfully implemented as envisioned, the new extension system demonstrated significant improvements. Internal World Bank documents cite four separate evaluation studies, conducted during project implementation in different pilot
areas, which reported improvements in the number of farmers being reached, the messages being delivered, and levels of family income. The recalculation of the project's economic rate of return proved high (20 percent), and the productivity of paddy increased significantly during the life of the project.

More important than the evaluation of the project per se, is the effectiveness and sustainability of the new extension system. The workings of this system are particularly useful for examining the sustainability of T&V extension because of its deviation from the standard principles. Clearly progress has been made, but is the system sustainable according to the SCOPE framework?

THE T&V PRINCIPLES EXAMINED IN LIGHT OF SCOPE

In applying the SCOPE analysis to T&V, it is important to remember that none of the strategies the framework characterizes for translating performance into capacity is inherently better; the decision to emphasize one over the other is contingent upon environmental conditions and internal factors. Similarly, the four resulting strategies: mechanical, adaptive, reactive, and interactive represent continua, and not totally separate categories. All systems possess both learning and reflective elements to some degree; which orientation is emphasized under certain conditions leads to the distinctions.

The characteristics of T&V that stress doing a limited number of tasks well in a highly structured manner would place the management strategy within the mechanical approach. This strategy emphasizes action over reflection and an internal focus of attention. Hage and Finsterbusch (1987:106), using a framework similar to SCOPE, characterize as a mechanical strategy, the organizational change brought on by the introduction of T&V in India. They went so far as to state that “T and V reoriented the extension service to become a model of a mechanical bureaucracy!”

While it is easy to see the mechanical characteristics of extension services organized along T&V lines, T&V incorporates a built-in learning process for all participants, through the systematic interaction and exchange of information. The farmer orientation, linkage with research and continuous training (and hopefully learning) would indicate a different characterization. Certainly in the early stages of most T&V projects, or where there is a significant backlog of relevant technical recommendations, the T&V strategy emphasizes the mechanical side of doing a few things well, according to rigidly structured and well-defined patterns. For the system to be successful over time, however, it must rely on other characteristics embedded in its philosophy of action, such as
continuous learning from the farmer, and feeding information on his problems and constraints into the research system for solution.

SCOPE categorizes a reactive strategy as one in which the system learns and reflects, but in which the learning is principally directed to improvements in internal operations or skill levels. This strategy characterizes T&V extension systems when they successfully engage in the planned interactive learning process and search for new farm management or technological solutions to meet changing conditions. Within the Indian experience, for example, there have been important instances in which T&V extension succeeded in learning and reacting to new conditions, consistent with the SCOPE reactive strategy (Israel, 1987:184).

As Israel (1987:186) points out, the simple application of a standard technological package is rarely what extension is called on to do. It is the complexity, heterogeneity, and unpredictability of agriculture that makes an extension service essential. Technical packages usually have to be adapted to local environments—this is what a well-conceived outreach system is supposed to do. The continuous dialogue among farmers, extension workers, and researchers is what permits that adaptation.

An adaptive strategy, using the SCOPE definition, is characterized by a system that reacts to change in the larger environment through quantitative adaption (using more resources but in familiar ways), which does not require the kind of reflection or learning necessary for making the qualitative changes referred to in the reactive strategy. When changes occur in cropping patterns or agricultural intensity due to relative prices changes, for example, a specific T&V system may adapt by redeploying village level workers or by altering the timing of visits.

An interactive strategy, which places emphasis on influencing change in the environment, is more difficult to envision with regard to T&V. T&V decidedly works with what is at hand, focusing on feasible improvements that do not require major changes in current practices or in external conditions.

Given the strategies (principally mechanical, reflective, and to a lesser extent adaptive) that are implicit within T&V, which works best, where? The SCOPE framework suggests that each strategy will lead to sustainability under different conditions of internal complexity and environmental hostility. The experience with T&V illustrates well the conditions under which T&V has been successful by aligning the capacity-performance strategy with the situational context.

T&V principles deal with the organization of internal processes of extension, particularly with regard to structure. Within T&V, the degree of formality is high and the structure is highly specified in formal, written rules. Each level of the service has a span of control sufficiently narrow to permit close supervision and monitoring of the level immediately below it. Although there is variation among countries and regions, in a
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typical T&V extension system, regional extension officers supervise four to eight divisional officers, who in turn supervise six to eight village extension workers (VEWs). The VEWs attend somewhere between 300 and 1,200 farmers, depending on local conditions and cropping patterns. The farmers are divided into about eight groups, and from each group about ten percent of the farmers are selected as "contact farmers" who will receive most of the VEWs' attention.

The degree of centralization is more difficult to characterize. The farmer-oriented philosophy places emphasis on continuous input from the farmers regarding their problems and constraints, giving the farmer a strong role in adapting technological information to his own conditions. These attributes emphasize a decentralized decision-making process. On the other hand, the top-down, centralized nature of the existing bureaucratic structure has led to the criticism that T&V extension systems have not been successful in incorporating farmers' input, and remain highly centralized, with a few people at the top deciding what the problems are and how they will be dealt with (Roberts, 1989:23).

Typically, the new system is grafted onto the existing Ministry of Agriculture setup, with an emphasis on control that, according to one observer "is uncomfortably consistent with the prevailing bureaucratic and hierarchical system of most ministries and, rigidly applied, the system can stifle local extension initiative" (Howell, 1984:98). Although the philosophy of T&V stresses the two-way linkage among farmers, extensionists, and researchers, in practice this aspect has often been weak, and particularly difficult to achieve with resource-poor farmers. According to another critic, "Though this may be vigorously denied, [the system's] main defect seems to be that it is not the producers who decide what they need to know but the managers and leaders of extension in the office who decide what producers should do, what they need to know, and when they are to be told about it" (Bunting, 1986:50).

With regard to technology, the other half of the internal complexity component of the SCOPE framework, there is significant variation within T&V projects, and so it is difficult to characterize the T&V "system." In the case of the early T&V projects in India for example, the technology was relatively standardized and routine. It concerned irrigated agriculture, stable environmental conditions, and few crops. On the other hand, the conditions of resource-poor farmers, in stressful environments, who produce a variety of crops under a variety of conditions and complex patterns, require highly "variable" technologies. Under these circumstances, in Africa for example, T&V projects have encountered significantly greater problems (Moris, 1989).

Regardless of the inherent complexities of the agricultural technologies that are adapted or disseminated, within T&V there is a clear effort to make the technology of the extension process less complex. Routines
and tasks are standardized through time-bound farmer contacts and training sessions. Tasks of the VEWs are made simpler, with less variability in their activities, compared to the activities of extension agents who have multiple rural development or regulatory responsibilities. Consequently, along both the technology and structure dimensions, the T&V system can be characterized as tending to have low to medium internal complexity.

With regard to the environmental hostility dimension, much depends on the individual case. "Agricultural advice is seldom in demand where it is dispensed inconveniently in an office, rather than conveniently in the fields; or where recommendations do not make sense in terms of farmers' priorities and perceptions" (Heaver, 1984:1). Once extension becomes effective and addresses the needs of farmers, demand no longer needs to be created.

T&V extension clients tend to be members of lower socioeconomic strata, to be unorganized, and to have low demand-making ability. The nature of the systems' outputs of technological recommendations tends to be private in nature, with varying degrees of difficulty translating them into value. In the India case, the information provided was quickly transformed into increased agricultural yields (also see Chapter II on this subject). Where technological solutions are not well developed or production systems more complex, the translation of extension outputs into value is much more difficult. This is one reason for the success of T&V in Indian irrigated agriculture, and the difficulty of replicating the success in other contexts. In any case, T&V's emphasis on technology adaptation, at the expense of other possible roles for extension field personnel, tends to reinforce the private nature of the system's outputs and their translation into value.

All of these factors, classified by SCOPE as direct influences of the environment, lead to relatively low levels of environmental hostility. The indirect influences of stability, flexibility, and distortion of the larger system vary with each project.

According to SCOPE, the mechanical strategy will promote sustainability in conditions of low internal complexity and low environmental hostility. As we have seen, T&V stresses low internal complexity and varying degrees of technological complexity, depending on the nature of the agricultural system. In early experience in India, for example, agriculture was characterized by homogeneous conditions and flat, irrigated terrain: a relatively less complex technology and low external hostility. To the extent that environmental conditions remain stable and low technological complexity is applicable, the more mechanical nature of T&V will encourage institutional sustainability. The early successes of T&V, especially in irrigated agricultural areas, fit this scenario well.

As environmental conditions become more hostile, with greater in-
stability along economic, political, and sociocultural dimensions, or as the technology requirements become more complex, with tasks requiring greater coordination and integration, the mechanical strategy will not promote sustainability. An adaptive strategy is best for situations with medium environmental hostility and internal complexity, and a reactive strategy is best for medium environmental hostility and high internal complexity.

The T&V experience is consistent with these propositions. The greater the need for more complex technologies, and for continuous learning to alter the technological recommendations and adaptations, the greater the need for a reactive strategy. The mechanical aspects of the T&V structure will not foster institutional sustainability without continuous interaction and learning among farmers, extension agents, subject matter specialists, and researchers. Failure to implement this process, relying on a simple top-down delivery system will probably not be sustained. As Baxter (1989:109) points out, "Once the basic system is operating, its greatest impact will come from management that continuously adapts T&V methods to operate more effectively in local conditions, coordinates with the required support organizations, and takes maximum advantage of the broad ramifications of the system." There is another important aspect of T&V, directly related to institutional sustainability, contained in the dynamics of the interaction between the environment and the system, as characterized by SCOPE. This is the internalization of what Israel (1987) has termed a "competition surrogate," that is, the pressure from different groups within the system which reinforces improvements in the others' performance. The continuous face-to-face contact alters the relationship and accountability between farmers and VEWs in a manner that allows the farmers to pressure the extension system for improvements in the quality of the work.

Likewise, the regular contact between extensionists and subject matter specialists and researchers fulfills the same function by giving feedback on the utility of the technical recommendations and the need for new adaptations. Obviously, this constant renewal through accountability only comes into play when a T&V system is working well, and the channels of communication function as designed. When this happens, "T&V can be seen as a moving chain in which each part puts pressure on the others to keep moving in the right direction" (Israel, 1987:181).

Within the SCOPE framework, this surrogate competition is represented in two ways. The first is through the interaction between the environment and the system in such a way that feedback relating to the valuation of outputs is made more systematic. When operational, this feature of T&V may give farmers their first real opportunity to provide feedback and have their valuation of extension's outputs incorporated into the system. At another level, the capacity-performance dynamic
incorporates the "moving chain" of pressure that corrects the course of action and moves the system in the desired direction, building sustainability.

To summarize, the SCOPE analytical framework clearly identifies the major elements of T&V that determine how sustainable it is. T&V imposes a rigid organizational structure that simplifies and standardizes internal processes, lowering internal complexity. It narrows the system in such a way that the mechanical aspects are valid, at least in principle, and are consistent with the environment in which extension must perform in developing countries.

At the same time, T&V principles incorporate a learning dynamic that promotes accountability and communication within the elements of the system, allowing it to react and adapt to change and increased demand. To the extent that T&V extension systems remain fixed in the mechanical nature of the process, they will not be sustainable beyond limited situations. In situations undergoing greater change or demanding more complex technologies, T&V will be sustainable to the extent that the learning and adaptation are operational.

SUSTAINABILITY CHARACTERISTICS OF THE PHILIPPINE SYSTEM

Most of the preceding discussion of T&V outlined previously is applicable to the NEP. However, the Philippine system has several distinct features that affect its sustainability. All of these relate to modifications to T&V that the country has chosen to introduce into its farm advisory system. Both the level of internal complexity and environmental hostility are higher than those assumed in the original T&V model. The outputs of the system include rural credit, farmer organization, and other issues that are of a more public nature, and are harder to translate into value. Similarly, the use of "contact leaders," who frequently represent village officials, have higher demand-making ability—another factor contributing to higher environmental hostility.

With regard to internal complexity, the Philippine structure is more informal and decentralized than proponents of T&V would recommend. Supervision is not rigidly structured, and the level of independence of the field staff is considerable. Units within extension perform different tasks that require high degrees of coordination and integration, leading to higher internal complexity along the technology dimension.

These modifications, introducing elements that increase environmental hostility and internal complexity, would point to a reflective or interactive strategy to be sustainable, according to the SCOPE framework. The high level of training of the field level workers, and the close contact with local leadership and existing channels of communication would
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seem to facilitate reflection and interaction. However, the lack of more structured support, of systematic training, and of supervision of the technicians and the relatively few subject matter specialists makes the learning process and accountability dynamic very difficult to operationalize.

A well trained staff and good technical packages existed to a large extent under the old system, but productivity and nutrition levels were low and the extension system was very inefficient. The support, linkages, and training of extension workers needed drastic improvement. These problems appear to have been only partially addressed by the modified T&V approach adopted by the Philippines.

Although the extension workers have an uncommon level of training, the job of any extension worker is extremely complex, too complex in fact to undertake without heavy professional support and continuous training. The traditional T&V methodology and structure seek to provide this; the modified T&V system of the Philippines appears to have placed even greater demands on the extension workers without providing sufficient additional support. Opting to work with greater internal complexity and environmental hostility, means that the inputs needed are also greater, more costly, and more complex.

The system has incorporated significant elements to improve the interaction between the extension worker and the local communities in which she or he works. The expectations of what extension should deliver have also been raised. The management strategy, however, may not be aligned well enough with the situation to provide the necessary inputs to meet the demand. The system will likely be sustained to the extent that the present system produces outputs valued by the village leaders, using a strategy stressing interaction between the field agent and local leadership (credit and farmer organization for example). The danger is that it will be unable to respond to demands for new technological recommendations.

CONCLUSIONS

The essence of the SCOPE framework is that different strategies for translating capacity into performance over time must be chosen based on the contingencies of the environment and internal complexity of the institution. This analysis provides important insight into the workings of both the T&V management and organization principles in general, and the specific case of extension in the Philippines.

Although supporters have claimed that T&V is applicable to "any" extension system, few believe it should be universally applied in the developed countries. Within the context in which extension typically operates in the developing world, the contingencies of technology, struc-
ture, and environmental hostility appear generally consistent with the management strategy of T&V. The large variations that do exist, require that aspects of the T&V philosophy of mechanical operations and interactive learning must be emphasized differently in different contexts. Over time, and in light of changing conditions, the system must be capable of adaptation and learning or it will not remain viable. The analysis presented in this paper would indicate that T&V is not primarily an inflexible, mechanical system. It attempts purposefully to limit the degree of complexity so that a more mechanical strategy can begin to produce results. As the system advances, the learning and linkages among farmers, researchers, and extensionists must supply the continuing internal dynamics of the system.

With regard to the Philippine extension system, the same holds true. However, by choosing to develop a farm advisory service that deals with significantly more complexity, the strategy must also accommodate and support the additional costs. The modified T&V approach adopted, places very great demands on the field technicians, without apparently providing the additional resources necessary to carry out this more interactive strategy.

Finally, there is an issue closely related to sustainability which the SCOPE analysis does not appear to deal with adequately—the issue of recurring costs. The four strategies imply different levels of resource requirements, mechanical being the lowest. Even this level, however, requires considerable human and financial inputs, perhaps higher than overburdened public bureaucracies can handle, regardless of the long-run payoff to farmers and society. The interaction between the framework's present elements and the extension system's initial or continued financing, would appear to be a profitable topic for further refinement and research.

NOTES

1. The T&V claim is only to universal applicability to the task of agricultural extension, although Israel (1987) goes much further. This is not necessarily inconsistent with contingency theory—if the job of extension is seen as much the same the world over, then some basic framework might be applied. To the extent that different roles are assigned to extension (Rivera, 1988), different frameworks may be needed.

2. This ratio of extension staff to farmers is truly exceptional. In the pilot T&V projects in India described by Feder and Slade, (1984) each village extension worker typically covered 700–800 farming families.
PART III

THE LESSONS OF EXPERIENCE
This chapter analyzes seven field applications of the SCOPE framework (Chapter 3). Four studies examined the sustainability of agricultural education institutions, two examined the sustainability of projects focused on research for the agricultural sector, and one examined the sustainability of a credit system serving small farmers. These seven case studies are described in this chapter and lessons for sustainability are drawn from them.

The action-inquiry methodology (Chapter 4) guided the review and analysis of the seven cases. Case data, collected via a specially-designed SCOPE questionnaire, have begun to constitute a quantitative data base on sustainability for future statistical study, and have been organized for qualitative analysis according to the protocol illustrated in Table 14.1. This chapter’s discussion draws mainly on the qualitative side of the comparative analysis.

CASES

Four of the seven cases analyzed here are the topics of separate chapters in this volume. Thailand’s NERAD Project is presented in Chapter 5, the Indonesian Provincial Area Development Project in Chapter 6, Morocco’s Hassan II Agronomic and Veterinary Institute in Chapter 9, and CARDI in Chapter 12. These cases are briefly surveyed, using the comparative protocol, to supplement the treatments in the respective
Table 14.1
Project Case Study Protocol

I. DESCRIPTION AND BACKGROUND INFORMATION
   A. The evaluation study: who did, how done
   B. Project: description, name, size, goals and objectives, outputs, activities, locations, funding, problems, schedule
   C. Project organization: name, age, location, size, activities, relation to project, relations with higher authorities
   D. Historical narrative: origin, evolution, key events, ending

II. RELATIONS WITH THE ENVIRONMENT
   A. Outputs: public/private, amount, value/demand, changes, sustainability, actions to change demand, profit rate
   B. Decision makers: identify & describe their attitudes toward and relations to project for project organization
   C. Stakeholder analysis: beneficiaries, supporters, opponents, competitors, government commitment, changes, projections, actions to increase support
   D. Political, economic, & social environment: conduciveness, stability
   E. Environmental constraints and opportunities
   F. Autonomy of project organization and core project staff and environmental resistance to change of project organization
   G. Dependence on foreign inputs: foreign experts, appropriate technology, external funding, recurrent costs coverage
   H. Dependence on subsidies, distorted prices and precarious special arrangements

III. PROJECT ORGANIZATION AND BEHAVIOR
   A. Capacity: quality of physical and human capital, their utilization
   B. Performance: achievements, evaluation
   C. Technology: routine/non-routine, repetitiveness, sophistication, change, appropriateness, dependence on foreign experts
   D. Structure: centralization, formalization, hierarchy, participation, blueprint/flexible, vertical & horizontal communication
   E. Management: consensus on goals, clarity of objectives & implementation plan, performance improvement, performance rewarded, scheduling, use of problem solving teams, experimentation, information gathering
   F. Strategy: standard or adaptive, mechanical or organic organizational structure contingent on the variability and uncertainty of the environment, action/reflection, internal/external focus

IV. THE FUTURE
   A. Sustainability: evaluation, strategy and plans, support cultivation, monitoring, continuation of benefit flows: benefits of outputs, continuation of outputs (permanence, maintenance, value retention), continued production of outputs (obtaining inputs, demand for outputs, benefits of outputs), expansion of outputs by diffusion & replication, reproduction of outputs (creating a process of reproduction), replacement of outputs, improvement of outputs
   B. Changes expected: cutbacks, programs stopped, secondary impacts, etc.
   C. Recommendations
chapters. The other three cases, not discussed elsewhere, are presented in slightly more detail.

**Bangladesh Agricultural University**

The Higher Agricultural Education Support (HAES) Project, funded by USAID, is designed to make the Bangladesh Agricultural University (BAU) more effective in producing trained agricultural manpower and in producing relevant research. Two major changes are considered key to these objectives. First is the overhaul of the curriculum, and second is the redirection of research from basic to applied, plus its integration with extension and training. Though staff will have to change their teaching and research, they nevertheless show considerable support for the HAES Project. The project includes technical assistance, training, curriculum development, internship programs, facilities, educational policy changes and new interorganizational arrangements.

Created in 1961 in the rural area of Mymensingh, BAU is isolated from Dhaka because there are only two vehicles on campus, and telephone service is poor. Politically, the university is well connected because its vice-chancellor is the brother-in-law of the President of Bangladesh. It currently enrolls 543 undergraduates and 250 graduates. It is the largest school for undergraduates in agriculture, and competes with the Institute for Postgraduate Studies in Agriculture (IPSA).

Graduates in agricultural studies are the main output of BAU. The demand for graduates has stagnated in recent years, in part because their training did not fit the demands of the job market, and in part because almost all BAU graduates went to government agencies, and this job market is almost saturated. The HAES Project is designed to correct the first problem, and BAU has begun to market its graduates in the private sector to solve the second problem. It will take five years, however, to develop the private sector job market for its graduates—to the level that it can absorb a significant number of them. The project instituted an internship program as one mechanism for increasing links to the private sector; other possibilities are under study.

The key external decision makers for BAU's sustainability are the Minister of Agriculture, the Minister of Education, and the University Grants Commission. Within the university, the vice-chancellor is a critical stakeholder. The two ministers have been very supportive throughout the early stages of the project. The university must now deliver benefits, for these decision makers to continue their support.

There are many beneficiaries of BAU’s activities. The two main groups are students and small farmers. In addition, the agencies that hire BAU students will obtain more suitable employees, the private sector will be served, national food problems will be somewhat reduced, and faculty
and administrators will be working with more resources and receive useful training. In fact, no group really opposes the project, though some faculty and some of the associated research institutes were concerned about possible loss of resources or status. The HAES design team worked hard to involve most of the stakeholders in the design of the project, and held meetings to forge agreement and commitment. In particular, an agreement was worked out between BAU and IPSA allowing both to remain semiautonomous institutes. Each opposed being subordinated to the other.

Overall, BAU’s environment is supportive, improving agricultural productivity is a national priority. The university has excellent political connections and strong informal networks. Political support for BAU has been steady, and its funding has been secure over the past several years. Furthermore, student unrest on campus has abated since student elections were held. The economic context is much more problematic. Bangladesh has had economic troubles and suffered natural disasters. The weak financial health of the country translates into tight budgets and increases the risk that the government will be unable to handle BAU’s recurrent costs. The major input problem is student under-enrollment, despite free tuition. The under-enrollment is due to lack of outreach, the inadequacy of the lower levels of education in Bangladesh, and the lack of opportunities for graduates. Finances have been reliable and steady. BAU has had little problem recruiting and retaining faculty. Facilities are inadequate and not well maintained.

Correcting the deficiencies of BAU’s capacity and performance is the focus of the HAES Project. Faculty capacity to train students in the skills and knowledge needed for professional employment, or to assist Bangladesh agriculture, is low. Faculty also lack capacity to conduct research relevant to Bangladesh’s agricultural productivity. BAU’s capacity weaknesses, however, are much less than its performance deficiency. It has teaching and research skills and knowledge, but they are not used well. They need to be redirected by means of a revised curriculum, new research objectives and linkages to agricultural agencies and producers. The new curriculum, objectives and linkages will require better facilities, equipment and means of transportation.

The structure of BAU is overly centralized. The degree of autonomy of faculty is only moderate in their teaching, though in their research, it is greater. University governance is centralized in the hands of the vice-chancellor, who makes the policy level decisions and most lower level administrative decisions. Faculty participation is low. In fact, the HAES Project seeks to raise it and to decentralize decision making to all segments of BAU. An institutional self-study is a mechanism for decentralization and will lead to numerous additional structural changes, many of which will be in the direction of decentralization. Advisory committees
and working groups are already being used more frequently. Decision making will also be decentralized in the inter-institutional system of agricultural training and research centers. The university will be less dominating and the affiliated institutions will become more autonomous.

BAU has devoted little attention to its external environment and made few adaptations to the characteristics of the environment prior to the HAES Project. This is the reason why such a massive reorientation of BAU is needed at this time.

Without the HAES Project, BAU would not be very sustainable over the long term. It has not articulated well with other agricultural institutions, and has trouble recruiting and placing students. It does have a good chance to become sustainable, because the government of Bangladesh is not required to pick up many additional recurrent costs. Nevertheless, the project creates a new integrated system of training, research and outreach that depends on considerable travel to the field, and BAU has a poor record of maintaining and operating a transportation system.

The following are specific lessons from this case:

1. A sustainability analysis of the university was integral to the design of the HAES Project. The successes achieved to date support the validity of the assertion that sustainability issues must be addressed from the very beginning of the project cycle.

2. The strong support and enthusiasm for, and the lack of opposition to, the HAES Project's objectives derive from the high levels of participation by beneficiaries and stakeholders in the project design.

3. BAU faces many adverse conditions and still has good sustainability prospects. The case runs counter to prevalent sustainability theory, because it shows that public institutions can be more sustainable than environmental conditions would otherwise suggest. Some of these adverse conditions are remote location, a saturated job market for its graduates, beneficiaries with little power (students and farmers), national economic problems and tight budgets, and problems of poor management.

4. IPSA had to be given autonomy in the project to avoid its opposition. Sharing power is a major way to win support.

5. The university is overly centralized, as are many of the organizations examined in this chapter. High centralization is dysfunctional in research or higher education institutions.

6. BAU was assessed as having good capacity, but poor performance. This situation allows for substantial increases in the quality or quantity of outputs, with negligible increase of inputs. All that is required is the redeployment of the existing capacity in more productive ways. In the case of BAU, it is hoped
that changing the curriculum and the approach to research, will generate quick performance gains.

**Hassan II Agronomic and Veterinary Institute**

Morocco’s Hassan II Agronomic and Veterinary Institute (IAV) is a very successful teaching and research institution, but it still faces sustainability problems. As Chapter 9 details, the IAV is an institution-building success story, a high quality training institute with a relevant curriculum, good outreach, and excellent faculty. IAV’s research is exceptional, for comparable institutes. Its staff are able to obtain many competitive research contracts, and have published at a high rate.

Key external decision makers for IAV’s future are the Ministers of Finance and of Agriculture and Agrarian Reform. The latter minister backs the institute, but must balance IAV’s needs against those of other institutions. It is not clear to what extent he is either willing, or able to make demands for the level of resources necessary to maintain the high quality of the institute, when funds are scarce. The Minister of Finance engages in an even broader balancing act; the risk there is that IAV’s success in attracting resources from outside providers will be used by the ministry to argue that the IAV can get along with fewer government funds.

IAV’s stakeholders are generally fairly supportive, but their support is mainly passive. They include students, employers of graduates, users of the research, users of other services, the extension system, and the staff. It is the staff that are the strongest advocates of the institute, and they work inside and outside of the institute for its preservation and growth. Another important stakeholder is King Hassan II, IAV’s founder and namesake.

IAV’s main sustainability problem is the uncertainty concerning the government’s willingness and ability to pay recurrent costs, as USAID support phases out by 1992. Currently, the institute’s excellence is artificially sustained by foreign resources. Without replacement of these funds, teaching, outreach, and research at the IAV will ultimately deteriorate.

Specific lessons from this case include:

1. Twenty years of USAID-supported institution-building has created a high quality research and teaching institute. The quality path is arduous, long-term, and requires a constant flow of resources, but it is attainable with strong donor and government support.

2. The IAV produces quality teaching, unlike the other three teaching institutes looked at in this chapter. It is also a research institute, which the other three are not. This supports the view that high quality teaching requires explicit
links to research. The top universities in the United States certainly believe in this principle.

3. IAV administrators and faculty have been the institute's most active lobbyists. Most other stakeholders, however, seem to take a more passive stance.

4. Morocco's foreign debt and government fiscal crisis threatens IAV's chances to obtain ongoing government support at the level assumed previously; this shows the importance of a country's fiscal health for sustainability. The IAV plans to cope with this shortfall by more aggressively pursuing external funding from projects and research grants, which illustrates that public sector organizations can engage in entrepreneurial behavior. Only high quality institutions, however, can successfully pursue this type of adaptive strategy. This suggests that better institutions have many more options than average or poor ones.

**Pakistan's University of Agriculture at Faisalabad**

USAID-supported institutional strengthening for the University of Agriculture at Faisalabad (UAF), begun in 1962, was cut short in 1970 when USAID terminated its assistance program in Pakistan. During that eight-year period, UAF projects supported the development of the faculty, mainly through training abroad. Following the cut-off of external funding, institution-building efforts ceased, although the university continued to operate with national resources.

UAF graduates students with bachelor's, master's, and doctor's degrees in agriculture. The quality of these graduates is low by international standards, but average for comparable developing country institutions. To date, demand for its graduates is strong, and they have little trouble obtaining employment despite substantial increases in the number of graduates over the years. UAF's faculty also does a small amount of research, mostly conducted at other institutions.

The UAF is favored by a benign environment. Political, economic, and social circumstances have generally been conducive to its survival. It enjoys a strong national commitment, and has remained unaffected by the political changes over the past two decades. The UAF has low dependency on foreign inputs. It has few foreign faculty or experts working with it, and does not rely on foreign loans and grants. Its funding from the government has been fairly secure and generally adequate for faculty, though not for equipment.

The earlier project was not sustained in the sense of the government continuing it when USAID left. Nevertheless, almost all of the faculty that had been trained by the project served the university for many years, so there was high permanence of outputs and their benefit flows. On the other hand, the value of their service diminished over time because they did not keep up with developments in their field, nor revise the curriculum as needed.
While the UAF has managed successfully to persist, it currently faces some future risks in terms of the SCOPE definition of sustainability. USAID, in fact, is considering a renewed institution-building effort that might correct many of UAF’s deficiencies. Many of the best trained faculty are soon to retire, and equally qualified professionals are not available to replace them. The curriculum is outdated and declining in relevance to the needs of the nation. Little attention has been paid to changes in the job market, or to issues of adaptation and sustainability. Therefore, the quality of its graduates is not high.

Specific lessons from this case include the following:

1. The UAF was upgraded with USAID support, but deteriorated after the agency pulled out because its faculty did not keep up with their fields. USAID is considering upgrading it again, but must design the effort with attention to sustainability to avoid repeating the earlier pattern. It should be noted that from the university’s perspective, the best use of limited resources may be to let the UAF slowly deteriorate, if an external agency will come along 20 years later and give it another transfusion.

2. The UAF budget reflects a noticeable preference for people over equipment, a common finding in developing country agencies. People are protected as much as possible in budget cuts, while equipment and maintenance accounts are slashed. Sustainability planning should anticipate this pattern and design around it.

3. The UAF has a conducive environment and strong stakeholder support, so it does not concern itself with the environment or work on increasing stakeholder support.

4. It is surprising that a university devoted to the teaching of science can be so traditional and lacking in creativity. Several characteristics of the UAF that may contribute to such traits are high centralization, secure support, little pressure to perform, and little in-house research.

Pakistan’s Northwest Frontier Province Agriculture University

The Northwest Frontier Province Agricultural University (NWFPAU) is primarily a training institute, which USAID, since 1984, has sought to reorganize into an education, research, and outreach system through the Transformation and Integration of the Provincial Agricultural Network (TIPAN) Project. The NWFPAU is a case that demonstrates that public institutions can produce low quality outputs and continue to receive sufficient funds to persist. NWFPAU’s benefit flows, a key element of the SCOPE definition of sustainability, are low because the outputs are poor (low relevance), but their production is nonetheless being sustained.

The major stakeholders for the TIPAN Project are NWFPAU’s vice-
chancellor and USAID. Both strongly desire change in the performance of the NWFPAU to make the research and training outputs more relevant to Pakistan agriculture. TIPAN's design integrated research with extension services. The vice-chancellor worked for four years to obtain approval for this integration, and succeeded despite resistance from the directors of the research centers to be merged, and opposition from some university staff who were concerned about job status and security. The national government is a strong supporter of the project and pays two-thirds of the costs.

Though the TIPAN Project is a well designed effort to correct the major weakness of the NWFPAU, it is unclear whether a sustainable institution will result. Much more analysis of, and planning for the needs of stakeholders and the concerns of decision makers is needed to win the support of these parties for funding the full range of activities required to maintain a first-rate agricultural education, research, and extension system.

Specific sustainability lessons from this case are

1. The NWFPAU shows that low quality institutions can be sustainable, but that strong leadership can greatly change institutions, even when incentives for change are weak.

2. The TIPAN Project is encountering more resistance than any other institution-building effort reviewed in this chapter. The major resistance comes from the directors of the research centers. Reforms that entail undesired changes for other organizations are likely to meet resistance, lowering chances for sustainability.

3. The NWFPAU is one of countless organizations that have no formalized internal process for upgrading their performances. Without one, the value of outputs declines over time. Incentives to improve, however, are needed to initiate and sustain a review process.

The Caribbean Agriculture Research and Development Institute

CARDI, discussed in Chapter 12, is unusual in that it is the agricultural research institute for several different countries. The USAID-supported farming systems research and development project targeted the development of new agricultural technologies, new research methods, and better internal management. CARDI has successfully influenced its regional and international stakeholders, turning active and open opposition into support. The institute engineered the turnaround by demonstrating the benefits of the new methods, involving many stakeholders in an annual planning and review process, using advisory boards with stakeholder representatives, using external reviews by respected
scientists, and lobbying actively. CARDI is a model of how to influence stakeholders to enhance sustainability.

CARDI has high dependence on foreign inputs. It receives support from its participating countries, but a fair amount of its research is subsidized by foreign donors. Nevertheless, it seems to be very sustainable, because it is good at getting the foreign support that it needs. CARDI's management is especially strong, emphasizing the adaptive strategy of SCOPE.

Specific lessons from the CARDI case include the following:

1. Appropriate management is a key factor in high performance. Good management includes plans for sustainability.

2. A major way to build institutional support is to show that the technical outputs of the organization are successful. Sustainability is enhanced by visible, identifiable successes.

3. CARDI has had strong support, but still has a resource problem because the governments in the region may not assume the additional recurrent costs. CARDI looks to external sources to make up the deficit. This strategy can be successful only because it is a high quality institution. In this way success is essential to its sustainability.

4. CARDI engages in farming systems research, which is resource-intensive. Should funds become scarce, cuts in operating budgets can jeopardize the effectiveness of this research strategy.

5. CARDI exhibits a mixed structure, both centralized and decentralized. The director sets policy without much input from the staff, and he negotiates with external stakeholders. Scientific staff are fairly autonomous in conducting their work. Centralization is often assumed to hinder performance, but the concentration of policy and external relations in the hands of the director may, in fact, be functional in a setting such as CARDI's.

**Thailand Northeast Regional Office of Agriculture and Cooperatives**

In a move to decentralize, Thailand's agriculture ministry created four regional offices in 1981. One of these was the Northeast Regional Office of Agriculture and Cooperatives (NEROAC), previously an agricultural research station. In 1981 USAID launched the Northeast Rainfed Agricultural Development (NERAD) Project, described in Chapter 5, to increase farm production. NEROAC was the project's implementing agency.

Initial activities concentrated on developing NEROAC's and its cooperating agencies' capacity for adaptive research with little attention to sustaining this capacity over time. A 1985 evaluation highlighted sustainability problems and NERAD priorities were changed in the direction
of institutionalizing capacity through an explicit strategy of demonstrating performance to key national stakeholders. Despite NEROAC's successes, prospects for sustaining NERAD-induced benefits are only moderate, mainly because the Thai government's willingness to assume recurrent costs when USAID funding ceases does not extend beyond the costs of highly visible projects that generate political support. A new USAID project has postponed the day of reckoning, so a sustainability crisis is not imminent. Nevertheless, a moderate decline in the level of outputs is expected.

Specific lessons from this case can be summarized as follows:

1. NERAD produced quality outputs but did a poor job of diffusing and institutionalizing them until recently. Sustainability involves not only producing outputs efficiently, but also putting them into use on a continuing basis.

2. The NERAD Project suffered from a design that spelled out in detail what was to be done and when. This greatly hampered implementation. The project was complex and involved many different parties, so it required much negotiating and coordinating. Blueprint designs are generally dysfunctional for institutional development projects.

3. The commodity-driven research focus of NEROAC prior to the NERAD Project was poorly suited to agriculture in the region. The project created a more appropriate research and extension methodology based on the farming systems approach. The lesson is that different conditions require different approaches.

Indonesia's Provincial Area Development Project, Credit Component

In 1970 the Central Java provincial government created the Badan Kredit Kecamatan (BKK), to provide credit to agricultural producers in the province. By 1979 one-third of BKK's field units had ceased to exist or were failing. Part of a USAID-funded effort, the Provincial Area Development Program (PDP), included a plan to revive the BKK by training staff, improving managerial and accounting procedures, and adding loan capital (see Chapter 6). The institutional development efforts in the 65 target units were so successful that the Indonesian government funded rehabilitation efforts throughout the province.

A 1982 USAID evaluation of the BKK system rated it one of the few successful credit programs of its type in the world. While an effective credit system has been created in Central Java, it is uncertain whether similar systems can become institutionalized successfully in other provinces. Most of them are too young to accurately assess their prospects for sustainability. If they can cover the recurrent costs of operations while lending at low rates, they will be self-sufficient. This will be critical to sustainability once USAID funding ends.
The BKK's credit terms are highly favorable compared to available alternatives in the informal sector, thus demand for its output is strong. The BKK enjoys a high level of support from clients and moderate to high support from the provincial governors and the directors-general of regional development, who are the key decision makers for the credit component of the PDP. It should be noted that the plan of the PDP was to have the subprojects be self-sustaining as much as possible.

Specific lessons from this case are

1. The large-scale BKK eventually became self-financing. Other credit systems adapted elements of the BKK system but none were large enough to adopt them all. These smaller systems may not be large enough to become self-sufficient. As with many other services, a credit system must exceed an organizational or market-size threshold to attain sustainability.

2. The BKK increased its prospects for sustainability by avoiding risky loans and selecting the most promising applicants for credit. This had a detrimental effect on PDP's experimental commodity programs, which raised risks to participants. These clients could not get credit from the BKK under the new guidelines. The requirements for institutional sustainability may conflict with larger objectives and values of socioeconomic development.

3. Experimentation was required to create sustainable credit systems for the poor in Indonesia. Decentralized systems allow for more experimentation and learning. Experimentation is costly, as many systems failed initially, but then adapted features of successful systems. Long-term success may require some short-term failure.

4. Civil Service protocols resulted in the credit systems being staffed by junior people with little experience. The systems overworked the staff, lowering motivation and increasing turnover. Bureaucratic and management constraints can reduce organizational effectiveness and make sustainability more difficult.

LESSONS FROM CROSS-CASE ANALYSIS

Some more general observations and lessons from the seven cases follow. Since the sample was nonrandom and very small these comments are preliminary.

Institutional Protection of Incompetence

A strong pattern of institutional protection of incompetence was found. Among all seven of the organizations, those that produced low value outputs had sustainability ratings on average slightly better than those that produced high quality outputs! Three explanations can be suggested. First, stakeholders seldom appear to take actions to push an institution to improve the value of its outputs even though they would
benefit from such improvement. As noted below, stakeholders seem to leave institutions alone even when they have grounds for complaints. Hirschman (1970) offers an illuminating discussion of stakeholder motivations that help explain this situation.

The second possible explanation is that the way bureaucracies function protects incompetent institutions even if stakeholders do request changes. Bureaucratic decision making seems to perpetuate the status quo unless extraordinary circumstances require drastic changes. Established programs and institutions continue in part because incremental decision making promotes only marginal adjustments. Muddling through can be quite sustainable, particularly in the public sector (Lindblom, 1959).

The third plausible explanation is lack of significant competition. The UAF, NWFPAU and BAU had low quality outputs, largely graduates with outdated or irrelevant training, yet they continued to receive budget allocations. They did not have to compete with higher quality institutions, and in some cases their demise would have created shortages of recruits for certain government agencies. Israel (1987) argues that some form of competition is essential for sustainable performance, responsive to needs.

**Passive Stakeholders**

The SCOPE framework emphasizes the importance of stakeholder support for institutional sustainability. This notion appears valid for new endeavors that need support for start-up, but it is less applicable to the sustainability of established institutions. Often key sustainability issues are decided among top level decision makers, and other stakeholders remain largely peripheral. Furthermore, it seems that no one complains about low quality outputs and performance (see Hirschman, 1970).

The passive stakeholder finding raises questions about the incorporation of political economy theory into the SCOPE framework. A major branch of political economy emerged from American experience and it may need further adaptation to Third World contexts. In American systems of local, state, and national government the influence and actions of various stakeholders (interest groups) are important in explaining policy outcomes, according to political scientists such as Bachrach and Baratz (1970), Dahl (1985), Domhoff (1983), Lindblom (1977), Lukes (1974), and Stone (1980).

Third World political systems share some common features with American political systems, but have quite different influence structures shaping stakeholder behavior and decision-making processes. Kinship networks are more fully utilized for appointments, favors and influence, as Hyden (1983) discusses in his study of administrative behavior in East
Africa. Pervasive corruption in the business of government characterizes the economies of some Third World countries, and impedes socioeconomic development (see, for example, Gould & Amaro-Reyes, 1983). Myrdal’s (1970) concept of the soft state, unable to apply and enforce its own laws and regulations, also points to a major difference between U.S. and many Third World polities.

In reconsidering political economy theory, Newby and others’ (1979) analysis of community power in rural communities is instructive. They found a pattern of political inaction in rural Suffolk County, England that has some strong parallels to the passive stakeholders found in the seven field studies. Though there were numerous potential bases for political conflict, they “found a decidedly tranquil situation of political harmony” (Newby et al., 1979:128). The study shows that non-contentious politics is common in rural communities.

Their explanation derives substantially from Bachrach and Baratz’s (1970) political theory of elite dominance, which serves as a good place to begin analyzing the issue of passive stakeholders. Three mechanisms of elite dominance are agenda control, anticipated reaction, and false consciousness. Elites dominate by defining potentially contentious issues as nonpolitical or illegitimate, thereby excluding them from the political agenda. Anticipated reaction is present when potential opponents do not raise complaints, out of fear of repercussions. Finally, false consciousness can arise from the close contact between elites and nonelites in rural areas, which allows elites to influence the perceptions of nonelites so that they are more obliging.

The Personal Factor

Personal networks, important in all institutional contexts, are particularly critical in explaining the degree of sustainability in developing country institutions. Good personal relations between organizational leaders and key external decision makers appear especially critical to maintaining resource flows in difficult times. The constant turnover of government officials, common in developing countries, makes establishing and maintaining these linkages a major task of effective leadership for sustainability.

The SCOPE framework postulates the importance of personal networks, and the seven cases reviewed here confirm this expectation. All the agricultural education or research institutions had good or very good political connections and were more secure because of them. The institute’s director was always key to effective political connections. The BAU’s director, for example, was the brother-in-law of the president of Bangladesh. The IAV’s current and former leaders are among the mem-
bers of the Moroccan elite with close ties to King Hassan II, who created the IAV and has taken a paternal interest in it.

**Success Sells**

The above point should not be interpreted to suggest that performance is not important for sustainability. Good performance can be the main "sales pitch" for gaining support and marketing the output of the institution-building efforts. NERAD and CARDI used their good performance records to build decision maker support and win beneficiaries' adoptions. Demonstrable success also was key to obtaining and continuing donor support in the IAV, CARDI, Central Java's BKK, and NERAD. Where client stakeholders were willing and able to exercise their "voice" option (Hirschman, 1970), institutions responded by performing better (in the eyes of those particular stakeholders); CARDI and BKK illustrate this well.

The SCOPE framework holds that success builds support. However, these seven cases suggest that the link between performance and ongoing support may not be as strong as initially postulated in developing country public sector contexts. This relationship needs further study.

**The Risky, Quality Path**

Establishing high quality institutions anywhere requires a substantial commitment of funds and resources. In developing countries, external funds are often needed for their creation. When donor support ends, national governments often cannot or will not support them at similar levels, and their quality generally declines. In contrast, less exceptional institutions can be easier to sustain, because they usually do not require special resources. They can manage with more available and less highly trained personnel. They use less sophisticated technology and therefore need less technical assistance or hard-to-get equipment. The problem is that they produce lower quality goods and services.

The top agricultural university in the sample is Morocco's IAV. Sustainability at its current level of excellence, however, is much at risk given the imminent cessation of USAID support. Both of the agricultural research institutions in the sample, CARDI and NEROAC, produced high quality methodologies and technologies. The sustainability of their benefits is greater than for most cases, but also involves more risk, due to the extra resources required to maintain them, through application of the inherently complex and management-intensive farming systems research and development approach. Producing superior outputs requires more interdisciplinary and interorganizational teamwork, more
field visits, and takes more contextual factors into account simultaneously.

Though the quality path is risky, nevertheless it holds the most promise for development impact. The IAV and CARDI cases demonstrate that high quality institutions have more options for obtaining resources from other sources; and in fact, the need to compete for resources may help to sustain quality over time (see Israel, 1987).

**The Law of Deterioration**

Similar to the second law of thermodynamics, the institutions in the sample tend to deteriorate over time. Normally staff become more competent simply as they gain experience, but in universities and experiment stations, staff must continuously expend effort to keep up with their fields; almost none do so at the lower quality institutions studied. The value of their expertise, therefore, progressively diminishes.

Another pattern of deterioration is evidenced in turnover, whereby more highly trained personnel, leaving for better opportunities or retirement, are replaced in those with less training or experience. For example, the UAF faced the imminent retirement of a number of its faculty who had been educated in America in the 1960s, during an earlier USAID project. Unless their replacements receive comparable training, the quality of the university will deteriorate.

Deterioration results from more than simply a decline in the quality of human resources. The following also play a role: organizational ossification; decreasing relevance of outputs; insulation from users, buyers, beneficiaries, or clients; decreasing feedback; failure to adapt to environmental change; or neglect of plant and equipment. The IAV, CARDI, NERAD and the BKK appear to have avoided these pitfalls, but the other three cases display some of these problems. All three had problems of relevance, the UAF suffered intellectual stagnation, and the BAU has not been adapting to environmental changes. These problems are targeted in the planned USAID institutional development projects.

Some of these institutions seem to depend on a cycle of renewal, backsliding, and further renewal. The cycle begins with an upgrading project, often supported by an external donor, then a period of progressive deterioration, and later another upgrading project to repeat the cycle. Improvement seems to come in spurts; few institutions upgrade on a continuous basis. Funds are usually short, so staff are not sent for studies abroad, library collections become outdated, and in-country workshops or conferences are neglected.
Cross-Case Analysis

Reforms Originate at the Top

Most of the efforts to upgrade or reform the institutions in the sample originated with the director or with USAID. Core staff and even beneficiaries often helped design the project, but the original impetus came from higher level stakeholders. This pattern confirms the findings of other research, which identifies the perception of a performance gap and a willingness to commit resources to closing the gap, as key factors in the initiation of institutional improvement actions (Hage & Finsterbusch, 1987; Brinkerhoff & Ingle, 1989). The combination of these two factors tends to be found at the top of organizations or in donor agencies. An interesting feature of the cases is that the push for upgrading did not come from the ministers to whom the institutions answered. The thrust came mainly from the director in the case of the NWFPAU, and from a combination of the director and the USAID mission in the other cases. We found several directors who wanted to improve their institutions even though they were under no apparent pressure to do so, except from USAID.

Involvement Brings Support

The best projects in the sample showed considerable involvement of staff, beneficiaries, and other stakeholders. As power was shared with them they took ownership of the project and helped design it to make it relevant to their needs. As a result performance improved.

The role of participation in development organizations has been extensively studied (Cohen & Uphoff, 1980; Korten, 1980, 1984; Finsterbusch & Van Wicklin, 1987; Hage & Finsterbusch, 1987; Brinkerhoff & Ingle, 1989). The lesson here is a confirming one, participation does matter for sustainability. However, as SCOPE suggests, there is no single best way of structuring participation, and involving stakeholders has resource implications.

Centralization and Decentralization

All the institutions in the sample were highly centralized, but most of them gave staff considerable autonomy. All major policy decisions appeared to be made at the top, with little input from the staff. Normally, one would expect universities and research institutes to be less centralized, but the pattern of concentrating the policy and linkage functions in the directors, and dispersing responsibility for education or technical decisions to the faculty or scientists, seems to work well. On the basis of this small and sectorally narrow set of cases, the thesis can be proposed
that a combination of centralization and decentralization can be effective for a significant number and types of organizations. This thesis, however, must be examined further.

NOTES

The author acknowledges the contribution of Gregg Baker to the preparation of the Bangladesh case and the Pakistan case. Mr. Baker, a staff member of the International Development Management Center and manager of the USAID sustainability initiative (see Chapter 4), served as the sustainability specialist on the field teams that conducted these country studies.

1. We must be cautious, however, in discussing stakeholder strategies and behaviors because the field researchers did not interview nongovernment stakeholders extensively. Most of their interviews were with decision makers and institute personnel, who tended to judge stakeholder influence as insubstantial.
The case studies presented in Chapters 4 through 13 show that institutional sustainability is a feasible objective for agencies concerned with stimulating and guiding agricultural and rural development. In most of the cases, systems were created that could obtain enough essential inputs to produce valued outputs over extended periods of time. This is not to argue that any of the institutions reviewed have "solved" the sustainability problem. As the chapter analyses have demonstrated, sustainability is multifaceted, and the input-output cycle can be disrupted at any time. Assuring sustainability requires constant vigilance from planners, managers, staff members, clients, and other stakeholders. Still, the majority of cases examined in this book have, by and large, had successful track records and seem likely to persist for the foreseeable future.

In explaining these accomplishments, environmental factors loom large. We argued in Chapter 3 that, as a rule, environmental hostility is inversely related to sustainability. We classified two kinds of environmental influences, indirect (in particular the political and economic background) and direct (especially the demand for an institution’s goods or services). Regarding indirect factors, most of the case writers report stable and flexible conditions in the wider surroundings. The experience of these institutions may not be adaptable to situations (all too frequent in developing countries) where the indirect environment is less hospitable. This inference is borne out by the least sustainable institutional innovation studied—the would-be installation of management improvements in Haiti's public sector. Political turmoil and economic straits in
that unhappy environment prevented most of the reforms from really gelling.

Indirect environmental influences are largely exogenous. They are not susceptible to management control. Insurmountable external crises can provoke the demise of almost any formal or informal group, no matter how well run, while extremely favorable circumstances can have the opposite effect. Even incompetent institutions may be able to get by during good times. The acid test of sustainability is performance during periods of shakeout, when societies tend to restructure the political and economic support given to different institutions. Several of the institutions studied, for instance CARDI in the Caribbean region (Chapter 12), seem to have weathered such challenges and emerged even stronger.

If the indirect environment is largely given, the more immediate environment is less so. The case studies clearly show that institutions do have considerable latitude to affect the demand for their goods and services, and the conditions under which they are produced, although there are some constraints imposed by the administrative context (see Kearns, 1988). Most tried to “market” themselves to maintain or solidify support from various actual or potential constituencies. They met with differential success in this enterprise. Among the more adept were the agricultural universities in Morocco (Chapter 9) and India (Chapter 11), systems whose feedback mechanisms and ability to self-correct seem highly developed. Although marketing is not commonly associated with public sector entities, the case studies suggest that entrepreneurship is important for sustainability in all types of institutions.

Internal institutional variables are potentially even more controllable than external ones. Managers and rank-and-file members often possess discretion about what technologies to use, what structures to set up, what procedures to follow. We proposed in Chapter 3 that internal complexity is inversely related to system sustainability. It follows that decision makers interested in the efficient and long-term production of benefits ought to strive for “lean and mean” structures and procedures.

The cases provide only ambiguous support for this proposition, however. Because most of the institutions studied employ sophisticated technologies and have to serve remote or dispersed clientele, there are limits to how much streamlining is possible for them. This was particularly true of NEROAC, the research station in Northeast Thailand discussed in Chapter 5, and also of CARDI, both of which are charged with the difficult task of conducting farm systems research. The clearest “outlier” among the cases along the complexity dimension was in the Philippines, where efforts were made to introduce straightforward T&V principles into the extension system (see Chapter 13); even that experiment proved more intricate than appeared at first. Fortunately, complexity did not
doom these institutions. Most were able to rise to the challenge of handling complex technology and organizational structures, though of course this used up time and other resources that could have been employed elsewhere.

The validity of the link between “lean and mean” structures and processes and sustainability may be borne out, however, as institutions enter the post-investment period when institution-building support and extra resources are no longer available. One of the key issues for the sustainability of the Indonesian rural credit systems (Chapter 6) was how they will be able to maintain effective operations once the regional development bank ceases to perform supervisory and oversight functions. In effect, the internal complexity of the BKK system was subsidized by the bank. Similarly, in Cameroon, USAID has subsidized the government to date by providing analytic and management capacity, both of which have been key to the results the FSSRP has achieved. The challenge for sustainability will come when analytic and management responsibility for the privatization program is transferred to the government.

The fact is that sustainability is not rigidly predetermined by either external or internal factors. This is because institutions, or more properly their stakeholders, usually have some leeway to anticipate shifts in demand for their products or services; to engage in self-promotional activities; to bring their operations into line with changes in their resource endowment; and to otherwise be “proactive”, should they so choose. Institutions, in other words, are strategy-making entities. Although their range of choice is bounded, they have the possibility to evolve strategies geared toward organizational survival under several scenarios. Determining what the range of choice looks like, and proactively exploiting opportunities, will increase an institution’s sustainability prospects.

All the institutions analysed in the case studies, with the exception of Haiti’s planning ministry, pursued various blends of adaptive and interactive strategies to translate their capacities into performance. As the SCOPE model in Chapter 3 indicates, these two categories of strategies reflect an outward-looking orientation to the institution’s surroundings. The case experiences suggest that for the set of contingencies in most developing countries, this external orientation is strongly associated with sustainability.

While USAID and other donors devote much energy to international and national strategy issues, they have tended to ignore strategy at the organizational level. The study of, and training in, project management have focused on administrative functions, that is on the routine tasks of budgeting accounting, procurement, and so forth. Relatively little attention has been given to the entrepreneurial dimension of management, that is to the nonroutine job of strategy formulation and implementation.
The evidence assembled in the middle section of this book indicates that strategic management makes an important contribution to the development of sustainable institutions.

STRATEGIC CHOICES

What lessons about strategy can be gleaned from these cases? Although we caution against any attempt to apply rigid guidelines to a phenomenon as complex as institutional sustainability, several practical ideas emerge from a comparison of the experiences reported in this book.

Secure internal commitment

International donors often decide a priori what their client countries need. Those countries are, in turn, often willing to take funds even for projects and programs that are low on their own list of priorities. This is understandable, for among other things the foreign assistance frees up local resources that can be used for high national priorities (Singer, 1965). But there are costs for sustainability. Lip service and paper support are not sufficient inputs to maintain most systems. Even worse, the inner logic of donor agencies can lead them to needlessly antagonize officials in the host country, whose cooperation is needed to build sustainable institutions (Cohen, Grindle & Walker, 1985). The more promising institutions studied tended to avoid these problems and to enjoy genuine backing from key national decision-makers, for example the King of Morocco or the Minister of Agriculture in India; or local-level decision makers, for example, the assistant to the Provincial Secretary in Central Java. Donors interested in a long-term return on their institution-building activities may need to pay more attention up front to the degree of high-level interest in the recipient country.

Pick feasible objectives

Among institutions there is a tendency toward "imperialism," that is toward expansion and aggrandizement (e.g., Downs, 1967). Although this satisfies the needs of internal constituencies for prestige and authority, it can jeopardize the system's long-term survival by spreading its resources too thinly. This is one source of the recurrent cost problem in Third World agriculture, whereby institutions are unable to meet their operational expenses and thus fully employ their human and physical capital (Howell, 1985). Strategic planning means deciding on an attainable organizational mission and allocating scarce resources to achieving that end (Porter, 1980). Strategy need not be painful, however, but can entail fresh and creative choices. The Thailand case presented a good example of an institution that, following a period of strategic drift, discovered a vacant institutional niche, unoccupied by rival orga-
nizations, which it succeeding in taking over. Similarly, CARDI's increased attention to strategic planning resulted in better specification of the institute's objectives and programs, which led to stronger performance.

Choose the right moment for strategy formulation

Institutions are said to be "path dependent" (e.g., Bardhan, 1989). They are strongly influenced by precedent, and existing patterns of behavior tend to get locked in place. This means the most promising time to establish a strategy for sustainability is often early in the institution's history, before "bad habits" have been ingrained. Morocco's IAV (Chapter 9) and Bangladesh's BAU (discussed in Chapter 14) both formulated clear strategies of excellence at their founding, which became part of the "organizational culture" and contributed to their subsequent sustainability. On the other hand, one of the barriers to sustaining the private enterprise project run by the chamber of commerce in Guatemala (Chapter 7) was the delayed timing of a strategic planning exercise. Fortunately, institutions seem to pass through cycles, so more than one opportunity exists to set overall strategic direction. Crises often provide a suitable occasion to rethink an institution's mission, as seems to have occurred with CARDI in the mid-1980s. Some sort of action-planning methodology seems promising under these circumstances (Chapter 7).

Build alliances

Part of the strategic planning process ought to be to create support networks among stakeholders, with particular attention to incentives. For even with endorsement from the top for reform, institutions often lean toward conservatism and fear of change (e.g., March & Simon, 1958). Advocates of the status quo find many ways to block or slow down strategies they find threatening; for example, the participants in Cameroon's public monopoly in fertilizer sought to sabotage the privatization reform (Chapter 8). This is why it is important to identify and bring on board those who affect, or are affected by, an institution's outputs. Again, action-planning can be useful for this purpose, as for example, in the consulting group venture in Ghana (Chapter 7). Effective partnerships between personnel from developed and developing countries, however, can be difficult to establish; evidence to date shows that they rarely emerge or get used optimally (Ross, 1988).

Differentiate perceived versus actual payoffs

Strategic plans must take account of the "true" value of the goods or services the institution offers. Sustainability may hinge on this issue, which is intimately related to incentives. The Haiti case shows clearly why. Most of the innovations being promoted had more costs than ben-
The Lessons of Experience

Effects for the civil servants in the planning agency, particularly those at the top of the hierarchy, who would be blamed if the new monitoring system succeeded in documenting nonperformance and misuse of resources. Exceptions were two outputs—computers and training—both of which served individuals directly by making their jobs easier or improving their career prospects. A similar phenomenon may help explain the persistence of the Pakistani universities described in Chapter 14. Their output (in particular, ill-trained students) was of poor quality by “objective” measures. But this did not matter to what is (arguably) the most important consumer of this output, the students themselves, who were able to get jobs anyway. The institutions probably felt little pressure to upgrade their output under these market conditions.

Offer long-term overseas training

Educational exchange programs are often criticized. Some of the allegations are that they raise expectations of participants to insupportable levels, and do little to increase capacity in the developing countries, which are unable to make use of the newly formed human capital in the absence of fundamental institutional changes; thus they lead to “brain drain.” There is truth in these arguments. But the cases also show, for technical institutions at least, that the formation of a critical mass of skilled personnel can promote institutional development and sustainability. Several of the universities studied, IAV for instance, had high-performance organizational cultures which were a direct outgrowth of overseas education of its faculty.

Set extended planning horizons

Although strategy formulation is an ongoing process subject to revision, it ought to look forward beyond the short-term. The normal project cycle often creates tension with this need to plan for the long-term, and its emphasis on achieving targets during the implementation period. However, planning for implementation and for sustainability are not the same thing. Many of the institutions studied managed to overcome this obstacle. In the agricultural university cases, prolonged collaboration, based principally on the international exchange of scholars, facilitated taking a long-term view of the upgrading process and allowed differing points of view to be accommodated; this is one reason these institution-building projects have generally done so well in sustaining themselves. The CARDI and NERAD projects dealt with this strategy choice by explicitly separating implementation from sustainability planning as the project investment period drew to a close, and focusing decision-makers' attention on what needed to be done to increase the chances for sustaining the institutions.
CONCLUSIONS

Not all of these strategic choices are feasible or relevant to every institution. Strategy usually has unique features that cannot be duplicated. Strategy making, however, is a transferable skill. For developing country and donor agencies to increase the probability of institutional sustainability in agriculture, in the 1990s, they need to rethink their approach to management training and project design, to put greater emphasis on managerial choice, on developing strategies at the organizational level, on evaluating environmental conditions realistically, on anticipating change, and on not overreaching institutional limits. This would not guarantee institutional sustainability, but might improve the chances that any given project would continue to provide benefits, following the termination of external development assistance.

Agricultural and rural development is a realm with many actors, where responsibility for the various tasks involved—research, extension, production, input delivery, commodity marketing, credit, and so on—is both shared and diverse. Institutions, to function effectively and become sustainable, must focus more than ever on the strategic dimensions of operating in a pluralistic arena (White, 1989). While difficult anywhere and particularly so in resource-poor settings, managing strategically, as the case studies show, is possible. More important, they demonstrate that strategic management is critical to institutional capacity for the production of an ongoing stream of valued benefits, that is, to sustainability.


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