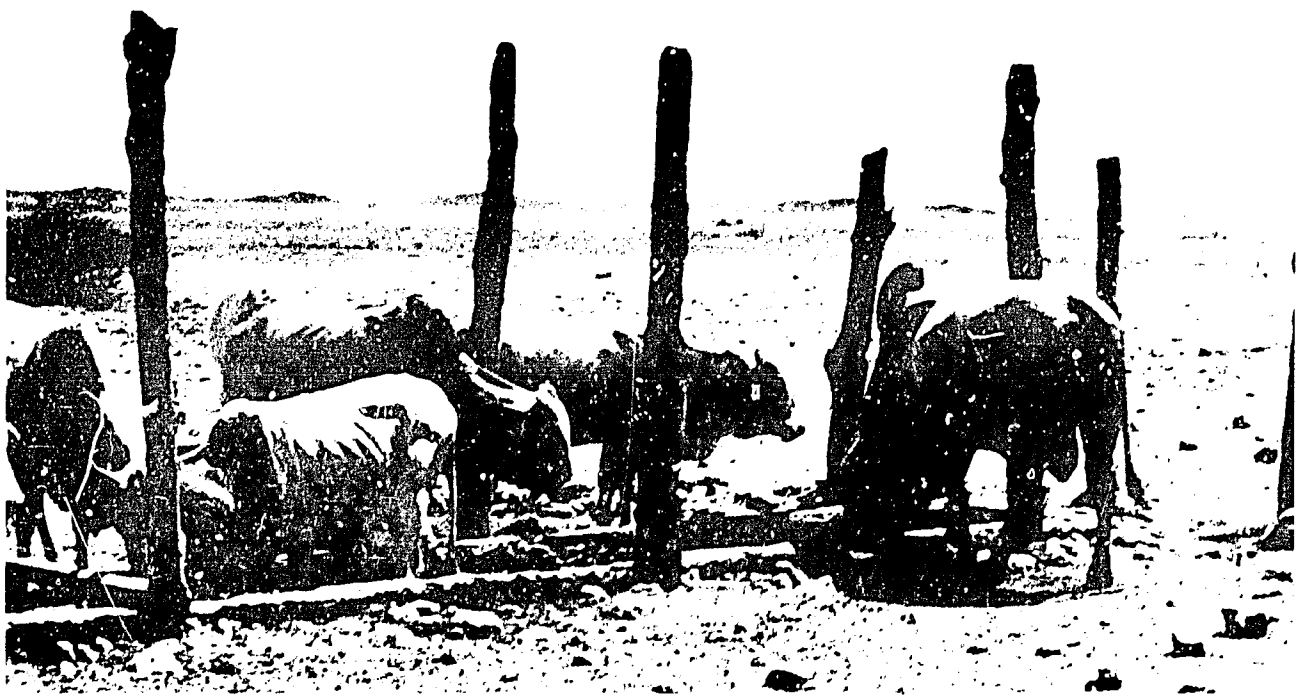
Managing Induced Rural Development



Managing Induced Rural Development

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To Suzan

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Foreword

This book might have had a different title — *Fundamentals of Rural Development* would have been apt. For this is a fundamental book, probably the most comprehensive statement on the subject.

The bibliography contains more than a thousand items. It is supported by classifications which invite selective penetration of a vast body of material. In addition, each of ten chapters identifies the major sources which bear upon the topic under examination.

But Jon Moris's book is more than a survey or synthesis of the literature. It is a powerful source of lessons; it presents an argument; it proposes and recommends.

The thesis of this book is suggested in its actual title—the *management* of rural development. The word is used in its most comprehensive sense, and related to the total business of strategizing, designing, implementing, and evaluating. There is much in this book about experience, and about theories as well—their biases and their effects. The organizational formats common in rural development are analyzed. The problems of attempting to transfer technology are diagnosed. The aim of this book is to help people find out what *is* actually needed and what is possible and how things work. There is pungent opinionation, and recommendations which make this much more than a critical dissection of its subject.

Jon Moris writes with authority. He has had about twenty years' experience in the field. From 1973 through 1976 he was the project coordinator for the Masai Range Development Project in Tanzania. Previously he had been rural sociology extension specialist on that project. Moris has also taught at Makerere University, the University of Nairobi, and the University of Dar es Salaam. He is at this moment Visiting Professor at the last of these institutions. Prior to that he was there as Professor and Head, Department of Agricultural Education and Extension. Moris is also Associate Professor of Anthropology and Rural Sociology at Utah State University.

Professor Moris worked over a six year period with Robert Chambers on studies of the Kenyan Mwea Irrigation Scheme. He has helped inventory all of the rural development programs in fourteen rural districts in Kenya. For four years, as a member of the Tanzanian civil service (on secondment), he participated in establishing a livestock services program in Tanzania's largest district.

He has also worked on the problem of designing and promoting relevant and effective agricultural education, in Zambia as well as Tanzania. His involvement in planning work ranges from curriculum planning in agriculture, public administration and regional planning to a share in the design of a major rural development program in Kenya.

Moris grew up in East Africa and took his Ph.D. in Anthropology at Northwestern University. Few if any Americans combine the breadth of experience and systematic study which he displays in this book.

Managing Induced Rural Development is not a textbook in the conventional sense. (Textbooks are generally safe distillations of agreed-upon knowledge.) It is too powerful and perhaps too judgmental to pass off as the usual sort of text. This is a *context* book. It frames the entire field of rural development. It ranges from the role and effects of ideologies to the tedious — but vital — business of scheduling inputs into a project. It lays out the basic problems of planning and design, and the effect of disciplinary constraints upon them. Most of all, it tells us how and why the fundamental problems of rural development are problems of organization and management — and shows what might be done about those problems.

PASITAM, the Program of Advanced Studies in Institution Building and Technical Assistance Methodology, is honored to publish this volume. It epitomizes our intent: to provide important and uncommon materials for practitioners and those who instruct and train them. There is no better way to do this than to draw wise lessons from experience. This book is a unique statement of such lessons.

Some, by no means all, of Moris's experience was gained in a large project funded by the United States Agency for International Development over a ten year period. Chapter 8, "A Case in Rural Development: The Masai Range Development Project," describes that adventure and sums its lessons. The PASITAM program has also been funded by the U.S. Agency for International Development. PASITAM is an investment by an important donor organization in shaping and disseminating practical knowledge, including lessons from its own experiences.

I hope this particular product of that investment will stir the thinking and sharpen the efforts of those who design and promote rural development, and seek to understand that elusive subject. If this vital book helps avoid just one significant mistake in an important program, it could save more than the entire PASITAM project has cost. More important, if it helps avoid one large error affecting a lot of poor people in a poor country, it will justify that cost.*

William J. Siffin
Director
International Development Institute
Indiana University
May 21, 1981

*An abridged version of *Managing Induced Rural Development* is available in German, as a chapter in *Manual of Agriculture and Nutrition in the Developing Countries*, volume 1, edited by Prof. P.V. Blanckenburg, and published by Eugene Ulmer, Stuttgart.

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Preface

This book is about the management of induced rural development. It is written from the perspective of the practitioner, the person in the field attempting to implement broad policies by means of rather limited public sector initiatives at the local level. It is not a conventional textbook in development administration, but an exploration of the issues to weigh when extending administrative prescriptions into the setting of a poor and slowly developing nation. Within less developed countries (LDCs), one finds a wide range of national experience. This book is addressed to the special problems of the "fourth world" countries—those non-Western nations which are population rich but resource poor, and whose present development still largely rests upon their agrarian performance. The focus is on strategies for increasing program and project effectiveness, and on the contingencies which limit what can be attempted. The objectives are:

1) To review what has been learned about arrangements for induced planned change in the poorer nations.
2) To make available a concise guide to the current literature on this topic.
3) To present insights about rural development derived from the author's experience in East Africa.

The strategies one might adopt to improve the administration of rural development range from the very broad to the very specific. We examine national development strategies as they are encountered in theory and in practice, intervention strategies for improving administrative productivity within the rural sector, program development, the art of designing field agencies capable of taking intelligent action, project management, the combination of resources and procedures to implement various kinds of programs, and task organization, the managerial ploys used to accomplish things in an environment where normally little gets done.

We shall not assume that strategies usually succeed—the record indicates they often do not—but rather that the experience of planned change can be made more bearable to all concerned if the administrators at least understand what they are attempting.

The contingencies which receive primary consideration are the situational constraints that one encounters in the field: the structure and culture of technical assistance, with all its quirks, the highly differentiated organizational environment which has already been activated to promote rural development, the diverse technical functions which enter into development processes, and the extreme poverty of villages and homesteads where programs are supposed to take root and flourish. The root dilemma which we address throughout this study is that while the rural administrator in an LDC faces an extremely demanding work situation (if one takes the goals of rural development seriously), the instruments at hand are old and blunt.

This book is also a personal statement based on my experience during the past fifteen years in East Africa. Some of these lessons may not travel well to other continents. For that reason readers are urged to use the bibliography to explore for themselves the rich literature that is now available. To colleagues who may find their worked cited in strange ways, I offer apologies. This study had to be prepared at a rush and entirely from the libraries in Morogoro, Tanzania and Logan, Utah. The support of USAID to Indiana's PASITAM program and Utah State's Tanzania project made this work possible (though the Agency may be grateful it bears no responsibility for the contents). I owe warm thanks to J. Black and K. Davidson of the Rockefeller Foundation for their support over the years, and to the Office of International Programs at Utah State for assistance at the writing stage. I also wish to thank PASITAM staff members: Richard Ryan for his editorial assistance, and Kay Peters and Mark Mandeles for their bibliographic work. Most of all, I am grateful to William Siffin for his extraordinary patience and encouragement in seeing that this project became a reality.

Jon Moris

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CHAPTER ONE

Strategies and Interventions

Strategies of Development

Administration: The Neglected Factor?

Administrative Reform and Rural Development; What Do We Know, What Do We Do?

The idea of having a strategy is beguiling. It suggests that the groundwork has been laid for taking determined action against a known enemy. The term derives from military affairs, where it denotes several features: a common purpose, agreement on objectives, assessment of the obstacles, control of means, and a provisional allocation of responsibilities. In military contexts there is an extra dimension not usually stated—strategies deal with matters of life and death, and hence any anomalies which arise merit careful scrutiny. (For a comparison of how the US Army and American business used the concept in the 1960s, see Anthony, 1965:148-156.)

Because of these connotations the term "strategy" is often used to describe public sector involvement in induced rural development. It is a way to dramatize field activities. It fosters the illusion that events are under control. At a minimum "to have a strategy" means one knows where one is going. It also implies that administrative actions are part of a coherent scheme based on an overview of the entire situation. The term will reappear at several points in our narrative.

There are usually two missing ingredients in these uses of "strategy" to describe corporate action: knowledge of one's capabilities, and specification of how the environment will influence actions. Both are fundamental in military affairs, so central they constitute the unstated boundary conditions which make strategic planning possible. Both are fundamentally aspects of *intelligence:* how rational planning gets tied to and constrained by real world entities (our own forces, the terrain or field, and the enemy's forces). Both are frequently left out when the term "strategy" is used in non-military affairs to signify the coordination of corporate actions to realize long run goals.

A. Strategies of Development

We find three distinct applications of the idea of "strategy" in the field of development: by economists to designate an analytically coherent cluster of policies; by policy makers to distinguish various agglomerations such as "the Chinese" or "the Cuban" model; and by the rest of us, to indicate broad descriptive patterns which indicate the direction of a nation's policies. None of these approximate the comprehensiveness and detail of the military metaphor, nor are they likely to, given the complexity of situations they describe and the rapid changes they must encompass.

Macroeconomic Strategies

Economists' notions of development strategy are the most widely encountered and the most narrowly based. Almost always they are deductively derived, emphasizing particular factors which a given economic tradition treats as having general relevance. Thus in the 1950s we had "balanced" and "unbalanced growth" strategies; and in the 1960s "capital intensive" vs. "labor intensive" strategies. (See Johnston et al., 1972). In support of an "induced development" model, Ruttan and Hayami consider four approaches outlined in the economics literature: (a) conservation, (b) urban-industrial impact, (c) diffusion, and (d) high payoff input models. All treat technological change as an exogenous variable. None pays direct attention to public sector agricultural investment and policies (1972:129-133). But "most governments intervene in the agricultural sectors of their economies...and their common experience has been the extreme difficulty of making sound agricultural policy" (Bowler 1979:i). This is particularly true in LDCs, which depend on agriculture and traditionally have relied on the public sector to stimulate agricultural development. The econometrically-derived "strategies" such as those proposed by Chenery (1974) and Syrquin (1974) remain silent about most of the significant choices these countries face. Reynolds concludes that on the whole "no one has said the last word in development models," adding: "A prime requisite is a convincing specification of the agricultural sector" (Reynolds 1977:52).

By the late 1960s a few researchers finally embarked on a multi-dimensional measurement of development without recourse to preliminary econometric models. The results were and continue to be disquieting. In one of the first of these studies Adelman and Morris found that as a result of economic growth in 43 countries, "hundreds of millions of desperately poor people throughout the world have been hurt rather than helped by economic development" (1973:192). Griffin's comparative analysis of the impact of the green revolution concluded in the early 1970s that "in none of the major underdeveloped regions of the world has there been an acceleration in the growth of agricultural output" (1974:4). These broad statements have been sustained by detailed case studies and statistics which continue to accumulate. During the 19 years, 1966-74, aggregate growth for all developing countries averaged 6.2% annum. World Bank figures show that since 1974 it has dropped to 5.2%. In sub-Saharan Africa it has been only 2.9%. External debt, which for all developing nations was about $74 billion in 1970, now stands at more than $235 billion for the 96 poorest nations, a total which rose by 25% in 1978 alone.*

Economists often claim that while their proposals are beneficial, LDCs have weak capability to implement them—an incapacity which derives from their poverty. (Good medicine—bad patients?) A comment nearly twenty years ago by Walinsky has been echoed many times, "Examples of faulty project execution in the developing countries are legion" (1963:73). But implementation capacity is not the economist's concern, it involves an "exogenous variable".

Exemplary Strategies

At the opposite pole—analytically, and often also ideologically—stand those who see the experience of a particular country as a potential model. Here "strategy" consists of the example a given nation offers by its particular selection of policies—agrarian socialism in China, Ujamaa villages in Tanzania, educational reform in Cuba, small-holder farming in Taiwan, etc. A substantial amount of faith is needed. Lacking analytic reasons why particular policies are necessary, one receives instead organizational details whose transferability is always open to question. How much of the success of East Asian nations is intrinsic to their policies, and how much derives from the willingness of their rural citizens to work very hard? Can Tanzania copy the Chinese model and gain the same results? (Damachi *et al.*, 1976). The answer is clearly negative. Within two years after the Chinese builders of the Tazara railway had left, they had to be called back to get it back into operation.

Policy makers talking about their own countries stress ideals, not actuality. Tanzania was experiencing wave after wave of cholera outbreaks at the very time British television was showing a film extolling the achievements of the nation's paramedical public health programs. Leys account of China (1977) makes the same point: when dealing with the *exemplar* approach to "development strategy", one must be prepared to find disparities between what is claimed and what has been achieved.

"Directional" Strategies

A third use of the term "strategy" refers to the *direction* in which a society is moving, or supposed to be moving. This view focuses on the goals of policy. In the first instance it distinguishes capitalistic from socialistic

*1979 *Annual Report*, Washington, D.C.: The World Bank, pp. 11-14.

A good introduction covering the recent country experience for China, India, Mexico, and Tanzania is contained in a special issue on economic development of the *Scientific American* September 1980.

paths. One can also discern a second cross-cutting dimension: whether or not industrialization is seen as the solution for the *whole* society. If it is one gets the pattern which Owens and Shaw (1972) label the "dual society" and other economists term a bimodal strategy. If it is not, one gets a "modernizing" (Owens and Shaw) or "unimodal" (Johnston) pattern epitomized by such countries as Egypt, Yugoslavia, and Taiwan.* In the latter cases there is an explicit attempt to involve the rural sector as a stable and continuing part of the evolving system, usually through a hierarchy of organizations with some sort of co-operatives at the base.

Griffin (1974) identifies three broad strategies, which he terms "technocratic," "reformist," and "radical". I suggest that a technocratic bias follows from adopting the industrial model as one's ultimate goal. It can be either capitalistic (US agro-business) or socialistic (USSR state farms). By combining the two dimensions, one arrives at the following typology:

		Economic Ideology:	
		CAPITALISM	SOCIALISM
Organizational Ideology:	INDUSTRIAL DEVELOPMENT	US Agrobusiness US family farm	USSR State farms
	RURAL MOBILIZATION	Kikuyu peasants Egyptian peasants Taiwan peasants	Polish peasants Tanzanian peasants Yugoslav commune Chinese commune

The assignment of particular countries in this scheme is purely illustrative. I do not know nearly enough about the differences in national systems to attempt a firm classification. What can be said with some certainty, based on Pryor's comparisons between socialist and capitalist nations, is that the economic system variable (or "ownership ideology") is not a statistically significant determinant of expenditure patterns in important sectors (Pryor, 1968: 287-89). The degree of convergence in mechanization and hence capital intensity between the typical US factory farm and its USSR counterpart is rather striking. Pryor's subsequent expansion of his inquiry to cover property and organization within samples of capitalist and socialist nations did find that socialist nations were more centralized. But within the seven socialist states Hungary and Yugoslavia were clearly less centralized, being similar to, say, France (Pryor 1973:312).** It would be illuminating to apply a similar analysis to the rural sectors under socialist and capitalist regimes.

Griffin's three-fold division of "styles" of rural development (1974:204) is most helpful in distinguishing "reformist" from "technocratic" capitalism. The direction the rural sector takes under modernization is strikingly different when the aim is to create smallholders represented through marketing cooperatives. The participative ideology shared by both capitalist and socialist forms of rural mobilization treats rural communities as having a separate right to livelihood equivalent to, but distinct from, the industrial sector. Economies of scale and the benefits of specialization are realized not at the primary level—in the way that both state farms and factory farms attempt—but rather at the secondary level through organized groups of farmers. However, socialist forms of mobilization tend to assume a monotypical organizational hierarchy, without competing groups at the local level. The capitalist approach to smallholders is more likely to permit plural forms of organization.

Rural development policies are only loosely coupled to the "strategies" we have identified so far. There are valid structural and situational reasons for this, but let us consider how they might be linked if it were desirable to have coherent rural development strategies.***

The Transformation Approach to Rural Development

Where the societal goal is outright industrialization, the accompanying rural sector policies might be termed the "transformation" strategy. This emphasizes physical infrastructure and mechanizing farming, accompanied by

*There is a large literature in economics dealing with dualism, and because of prior connotations the labels used both by Owens & Shaw and Johnston are unfortunate.

**Pryor's table (1973:25) comparing decision-making powers in Soviet and Yugoslav coalmining illustrates the different organizational ideologies in the two systems, even though in these regimes a pluralistic power situation is generally not tolerated. I suggest the same dichotomy would be found in their approach to agricultural sector organization.

***The distinction between "transformation" and "improvement" strategies goes back to an early World Bank review of agricultural development in Tanganyika. See Long (1977:144-184).

an exodus of rural population to the urban sector. Except for a small number of large-scale owners and managers, the residual population of, say, 10-15%, remain as laborers employed by estates (under capitalism) or state farms (under socialism). The transformation strategy sees existing peasantries as a *problem*, occupying valuable land and refusing to accept technocratic recommendations. It stresses the futility of incremental change; a sharp break with the past is necessary. Efficiencies of scale and technology are invoked. The art of development will be to juggle the rural exodus to avoid temporary food shortages caused by "market imperfections" in a dual economy. The approach assumes cheap energy and expanding employment in the urban sector. It is very capital intensive, but hides this fact by employing only a single criterion of farming efficiency: output of food produced per man. It extols economies of scale and festoons its offices with pictures of huge tractors harvesting four abreast across unlimited fields.

The accompanying requisites are rarely spelled out. Financially, the high initial investment requires high sustained levels of output. These are extremely difficult to achieve in novel settings. The farming system—crops and fields—must be amenable to radical simplification, or else economies of scale will not be realized. Water rights must be unencumbered. Subsidiary services—parts, fuel, maintenance, transport, storage, seeds, and credit—must be in place and efficient. Fertilizers must be available. Disease control must be effective, and this means prior scientific investment. Finally, there must be somewhere for the displaced rural population to go. Hall's study (1978) of the effects of irrigation in Northeast Brazil illustrates how the tranformation approach goes wrong in practice, and many other examples can be cited. On the whole, the approach requires the same high technical standards of administrative capability which one finds in the industrial sector of a modern state.

There are also less obvious systematic considerations. In the transformation approach output is a proxy measure of development. The social system pools its available capital and a few operators control substantial agricultural resources. In a developing country this is justifiable only under stringent conditions: that the people whose land rights have been extinguished have alternative livelihoods; that the large operators (whether private or parastatal) pay equivalent taxes on their output; that the monopoly power which mass production encourages is adequately restrained; that the large increase in water and energy use is socially and economically justifiable; and that this represents the best employment for scarce capital. The initial misgivings among development theorists centered on the last point. More recently authors have begun to query the whole idea that increased output means much more development. The fundamental sources on this topic are Schumacher (1973), Owens and Shaw (1972), Perelman (1977), Hirsch (1978), George (1977), and Dahlberg (1979)—powerful stuff, the kind of literature Marx would be writing if he were alive today.

The "Improvement" Approach

The non-socialist alternative under a "reformist" regime attempts to work with peasants in existing communities, i.e., the "improvement" strategy. The aim is to evolve a framework of cooperation that meets the needs of modern, high volume marketing but which leaves the individual on his land and in control of his resources. The measures congruent with this goal include land reform, farm planning, cash crop development, supervised production, small farm credit, marketing cooperatives, youth clubs, farmer training, input supply schemes, and agricultural extension. Several of the green revolution components were also aimed specifically at smallholders.

The improvement strategy sees peasant smallholdings as an emergent farming system capable of continuing to support rural populations. It argues that under hand cultivation with perennial crops even very small farms of, say, 2 hectares (5 acres) can support a family, while 5 hectares constitute a profitable holding. It stresses the necessity of incremental change. It sees "progressive farmers" as a key link whose assistance is necessary to accelerate the "diffusion of innovations." Small operators should hold secure title to their land and have the opportunity to grow a wide range of cash crops (if necessary under fairly tight supervision.) Then the art of development lies in holding down population growth and in getting farmers to stop cheating the cooperative (and vice versa). Cheap family labor, available cash crops, and enlightened leadership are assumed. The "yeoman farmer" is extolled and the possibility that little farmers have as much reason to exploit their neighbours as big ones is ignored. In this case, offices are festooned with pictures of women transplanting rice.

The administrative correlates are once again stringent. The two central institutions—land reform and marketing cooperatives—yield quite different outcomes depending on the quality of their administration. Both are notorious for bribery, and for the possibilities that they may provide to dispossess small peasants of land and profits. Both require committed management and the capability to maintain good records at the local level. Reaching hundreds of smallholders through a hierarchically organized extension service is also formidable. To give smallholders effective access to the necessary services is often beyond the organizational capabilities of field services except in favored districts. Successful smallholder development is by definition extremely organization-intensive.

The Rural Socialism Strategy

The third alternative, which we might term "rural socialism," counterbalances the industrial sector with a hierarchy of peasant collectives and communes. The aim is to consolidate peasant support for the revolution, while moving—sometimes in stages, sometimes abruptly—away from individual production. It differs from smallholding systems in forbidding farm units above a specified size. Only houseplots may be permitted, but at least anyone can claim a place. The community controls common lands, although the degree of joint production (usually carried out within production brigades) varies. Peasants are restrained from moving to urban areas and may be joined on occasion by intellectuals, disgraced politicians, and even party bureaucrats. Wealthier peasants are seen as a problem, because of suspect loyalties and subversive attachment to private enterprises or previous land claims.

Rural socialism stresses moral incentives, necessarily so in the initial years when the production system is in its teething stages. Incessant meetings are held to convince everyone to sacrifice so the nation will advance. Party politicians are given unfettered opportunity to display their technical expertise. Then the art of development lies in mobilizing the masses and overcoming counterrevolutionary tendencies. The approach assumes economies of scale, whose benefits are promised as the material incentive ultimately to secure peasant commitment to the revolution. These are to be realized through better planning and consolidated services, not necessarily through mechanization. Great faith is put in the efficacy of exhortation. Production quotas should exceed what anyone has ever accomplished before. Intermediate technology is theoretically good and practically unavoidable. Leaders extoll self-reliance and festoon their offices with posters of muscular militiawomen brandishing AK-47s.

It is easy to parody a religious tradition when one does not share its beliefs. But in rural socialism *beliefs* are the problems. They keep socialists from recognizing how much they are expecting from the system. Sacrifice becomes meaningless and even counterproductive unless it is accompanied by increased labor discipline to improve productivity.

What if economies of scale do not materialize and the villagers' real income falls? Or if planning methods imposed from above decrease rather than facilitate output? What if putting farmers into huge villages exceeds the managerial competence and supporting resources of local cadres' and people begin to die from cholera and malnutrition? On what basis should work points be assigned and profits distributed? How does one set prices for an entire district without access to basic production and marketing data? The range of decisions that must be managed under rural socialism far exceeds the demands made on staff under rival approaches. For socialism to deliver the benefits it promises, the party cadres must routinely display high levels of dedication, work discipline, technical knowledge, and planning skill. To insist that people will "learn from their mistakes" is simply not good enough. The strategy puts field staff into unusually demanding situations.

This book is not about rural development strategies as such, but about how administrative factors enter into the implementation of these strategies. The economic development literature treats administration as a residual factor—in the last three sentences in Schuh's (1970) 477 page book on the agricultural development of Brazil for example. Yet the resources being expended in accordance with accepted strategies are often irreplaceable: Nigeria's oil, Zambia's copper. Decisions to expend these reserves are thus a vote of faith in the efficacy of a chosen approach. Once they are gone the nations in question have little else to offer to the international exchange system. Meanwhile, the monetization of production is rapidly destroying traditional crafts in all their forms, so that there will be no road back. Traditional subsistence will not be available to cushion rural populations from disaster. If the administrative capabilities are not present when the state tries to accelerate development, its interventions will have adverse and largely unanticipated consequences throughout the rural sector.

B. Administration: The Neglected Factor?

Overall national development has occurred, but in most instances rural development has not kept pace. In all current strategies administrative aspects are left to constitute a second order, a residual factor. Administration is seen as a concern of the implementation phase, to be dealt with later on.

Note in contrast: a military conception of strategy includes the derivation of systematic intelligence about the war theatre (here the rural sector) and one's own forces (here the quality of administrative action). From a military standpoint, reliable knowledge of one's own capabilities is so fundamental that huge sums are spent in staging war games and in financing limited wars by client states, to test weapons systems under realistic conditions. Identified weaknesses become prime factors to consider and may necessitate a reformulation of overall strategies. Why, then, is the analogous assessment of administrative capability such a minor concern in approaches to economic and rural development?

The Colonial Legacy

One reason must be surely the opprobrium attached to all aspects of colonialism in recent world history. America shed its official colonies long ago (Puerto Rico and Samoa barely *exist* in the American consciousness), and took the lead in the 1950s in pressing other powers to do likewise. Analysts of all persuasions and ideologies condemned colonialism. In so doing they substituted a description of trends for an analysis of organizational imperatives. Few of the commentators spotted, for instance, the corrosive effects of monetization on indigenous life which the anthropologists were documenting and which we now see was a universal phenomenon during this period (Pryor 1977). Even less time was given to analyzing the economic and administrative imperatives which a colonial state must come to terms with, e.g., the large effort necessary to create internal systems of governance and exchange.

The capability of a newly independent regime to utilize investment productively much depends on its heritage, but one can hardly expect a post-independence regime to broadcast this fact. Instead the circumstances leave new rulers in a vulnerable situation. It becomes tantalizingly easy to divert attention from present problems by labelling *them* the heritage of colonial oppression. Marxism reinforces this delusion—who ever hears about socialist colonialism?—and Marxism adds the international exchange system as another scapegoat. One reads with excitement an erudite analysis of underdevelopment like that provided by Szentes (1971), only to find its prescriptions compressed into a few pages at the end—requiring enormous faith in the automatic efficacy of economic disengagement as the solution to all varieties of home grown incapacity. What about administration?

The Wane of the Institution Building Approach

The topic went out of fashion in the early 1970s. The 1960s were characterized by a widespread interest in strengthening LDC administrative capability, leading to recognition of "development administration" as a separate field. But this discipline lacked theoretical underpinning—"institution building" never sounded profound. It was colonized by political science and the discovery of systems theory.*

*For an overview of the institution building approach, see Siffin in Rothwell (1972); also Montgomery and Siffin (1966). Riggs (1964, 1966) and Esman (1972) epitomize the comparative administration approach, whose most lasting contribution was probably the Uphoff and Lichman volume (1972). Wamsley and Zald (1973) utilize a contingency approach simiar to the one in this volume. For the contemporary scene see Giant (1979) and Esman (1980).

In focusing comparative administration on the *ecology* of administration, US political scientists made internal structure and operation of administrative systems their dependent variable (Riggs 1980). Administrative systems were seen as reflections of other forces in society, and they escaped critical analysis on their own right. At that time (1965-1970) the salience of administrative factors seemed obvious. All over Africa new nations were emerging and their appetite for "institution building" seemed almost insatiable.

In their stress on variable contexts, comparative administration theorists abandoned the intractable problems of internal administrative reform. They had begun by affirming their centrality. Braibanti opened his book on administration in India with these words: "The direction taken by reforms in the organization of the public bureaucracy is predetermined to a large extent by the quality of order with which a society can direct and thereby control change." But such pedantic concerns quickly became old fashioned, part of public administration's previous identification with *institutions*, not the scientist's with *systems*. The foundations and donors lost interest in development administration sometime around 1972-73—and the field was left an intellectual and financial orphan. Its growth ceased as abruptly as it had begun.

Perhaps even more important, economic analysis, which dominates development thinking, treats administrative capability as a condition outside the variables of primary concern to the policy-maker. One decides policy, and *then* one somehow assesses administrative capability as the first step in the implementation sequence (for some reason, implementation is never the economist's responsibility). Furthermore, within micro-economics the analytic frame assumes that the linkages in a system are already operational. "Marginal analysis"—the effect of one increment of input on output—would be a meaningless exercise if the components within the production process were not yet interconnected. I call this the "linkage sufficiency assumption." It underlies most forms of micro-economic analysis. It permits economists to ignore the functioning of processes within the "black box," as the production coefficients relating inputs to outputs serve as proxy measurements standing in place of more precise internal parameters. Economics judges the quality of output but does not really tell how it occurs.

How it occurs is unfortunately the name of the game when you are starting from a zero base in an LDC. Typically it takes from three to seven production cycles simply to get the various components in a complex process to intermesh. Arrangements are complete, but the seed sent from headquarters is for the wrong altitudinal zone. Fertilizer is distributed, but the rains start early and farmers have already planted. A crop is grown, but consumers dislike the yellow color of the grain and refuse to buy it.... Once production gets underway a host of in-

stitutional problems arise which cannot be foreseen because of the novelty of the effort. By definition, in a "developing" country the institutional context will either be entirely absent or at least inadequate. My own rule of thumb in the poorer African countries is to expect administrative efficiency at a level of about 20-35% of potential productivity. Currie stated that for new plants in Latin America in the 1960s, "it is probable that most equipment is not in use more than 10 to 15 percent of the time" (1966:54). In such a setting costs and returns tell the manager that the operation is grossly inefficient, as if he did not already know!

Understanding Administrative Capability

The crucial role of administrative capability is not obvious on one's first acquaintance with a developing nation. The visiting expert who arrives in the capital city is relieved to encounter the same rituals he left at home. It seems the administrative system is the most familiar element in a strange setting. Bureaucracies the world over share the same superficial characteristics. Of course administrative rules differ somewhat, depending upon the metropole of the former colonial power, and the expert will spot a few quaint relics of an imperial past. But it becomes easy to accept the view propounded by local officials that their problems really stem from the poverty of their resources.

What the outsider rarely comprehends on a short visit is the invisible constraints which limit effective administrative action. There is the troubling issue of ethnicity, which in Africa is termed "tribalism". The balancing of ethnic composition is a continuing preoccupation of senior administrators in most LDCs. Then there is the widely observed injunction against the dismissal of permanent staff (with the consequence that staff rotate back and forth between posts and the average tour in the field may be as short as 6 months). Lower echelon staff are commonly tied to specific duties which do not require their full attention, so that despite low wages the overall costs of operation are high. Time itself cannot be scheduled reliably, because one's commitments are always being overtaken by the changing schedules of those higher in the hierarchy.

The new manager learns that even routine actions (such as requisitioning supplies) require personal intervention. Or that some critical unit of equipment cannot be serviced locally, bringing the entire operation to a standstill until the missing part arrives from overseas. Sometimes one cannot even telephone between sections of the same city, and the vehicles are in use all day long ferrying messages (and wives) back and forth. Finally, it is not unusual for lateral communication outside the organization to be forbidden, even when the help of other agencies is essential.

If these claims are based on my own East African experience they bear strong resemblance to the "seven deadly sins of bureaucracy" on which Malaysia's Tun Razak waged war in 1957. (See Esman 1972:135.) They exemplify the frustrating administrative difficulties facing the LDC public sector manager every day. Some are so widespread they might be regarded as the diagnostic features of Third World administration (Moris 1976).

None of these limitations are confronted at the outset, when policies are being formulated or new projects being negotiated. In the preliminaries everybody's interests seem to coincide. The ministry officials at headquarters welcome external attention. It reaffirms their own important roles in national development. They may anticipate new buildings and equipment, or perhaps a reciprocal visit to the experts' home country. The experts are pleased to find their proposals so readily accepted—even sometimes enlarged upon ("Why not three provinces instead of one?"). And both sides conduct themselves in good conscience; their decisions will ultimately benefit the peasants.

Under most procedures for development planning, the administrative capabilities of the receiving system are not considered until a program is well underway. We have no formal techniques comparable to cost-benefit analysis which require—or allow—these aspects to be reviewed within the initial planning process.* Instead, after the policies have been determined and the program designed the field staff are brought in and left to struggle with the realities of local administration.

The difficulties which then arise are legion. Local officials may immediately object to the siting of project elements—it is a political perogative. Good projects may be doomed from the start because a key component is put in the wrong place (the minister's home village). Then the staff encounters the weaknesses of local contracting, supply, storage, and transport services (with delays of a year or more because there is no cement). Under circumstances of acute scarcity, special considerations must be arranged to oil the official machinery: bribes in capitalist-oriented nations, perhaps a barter trade of services in socialist nations. Expensive equipment arrives but notification is not sent. One discovers it lying on the docks for three months in tropical rain (another bribe to waive the horrendous demurrage charges). Or the first time equipment is used the whole unit burns out because the wrong voltage was connected.... Any experienced field manager from the LDCs can spend hours filling in details of this nature, making implementation seem almost inconceivably difficult.

Why do economists view these as the peculiar problems

*See the UN volume (1969) *Appraising Administrative Capability for Development*, and the book, *Action Under Planning*, edited by Gross (1967). Both works remain very useful and are the starting references on the subject. See also Powelson's concept of "aggregate institutional effectiveness" (1972:215-222).

of *implementation*? Colin Leys has stressed that the factors retarding implementation have been present all along. They are normal features of the organizational environment in most LDCs. It is the artificial isolation of planners working under the "economic planning" umbrella, with its capital budgeting preoccupation, which makes it seem as if implementation is the problem. Everyone else realizes that the *system* is problematic. If planners were really part of it they would make due allowance for its characteristic performance deficiencies.

The earlier literature of development administration tended to treat these difficulties in isolation—as individual "problems" of particular developing countries—or as a reflection of external demands upon a given administrative context. On topics like corruption in the LDCs there is now a substantial literature—(see Hoogvelt 1976:127-37, Rose-Ackerman 1978, Roy 1970, Scott 1972 and 1976, Tilman 1968, and Wraith and Simkins 1963). But most authors simply chronicle the "irrational" deficiencies of third world administration in contrast to the "rational" and "efficient" nature of Western management.

External criteria cannot be employed meaningfully without noting the perspective of the judge. To many Asian and African officials Western bureaucratic procedures appear irrational and inefficient. Western timetables are allowed to disrupt vital cabinet meetings; Western senior personnel may be sacked without regard to their family situation! Westerners understand intuitively that the ambulance cannot deliver secretaries to work each day; but we might not render the same facile judgment if we had to walk four tropical miles each way to the office. The rationality we see in our own system protects the organization's interests against those of individuals. The trains will run on time to the extent that everyone modifies his individual preferences to fit the requirements of the system. In settings where there are *rational*—and effective—reasons why individuals do not conform to the rule, the trains will not run on time.

How can we begin to understand the behavior of policy-making officials and managers in LDCs? *First*, the poverty they see on all sides paradoxically encourages actions which perpetuate poverty. When investment capital is very limited a government will tend to allocate it to new projects, not to the maintenance of existing infrastructure. Officials in LDCs often ignore minor improvements in order to be ready to request large grants from foreign donors. Scarce transport and equipment will often be diverted to meet a multitude of pressing claims without being serviced. In all these instances the effects will be to shorten, often dramatically, the useful life of investments already made.

Second, people will go to astonishing lengths to preserve what they conceive to be their honor. Here the demonstration effect of institutional models observed in the developed nations has an enormous backwash influence. If each American state has its university, LDC provinces and regions must have universities too—since it was education that obviously made America strong in the first place. Honor is one of those peculiar notions which is easily understood in regard to one's own interests, but easily denigrated or overlooked when it applies to somebody else's interests.

Third, the perceived scarcity of senior jobs and other benefits may encourage junior officials to respond as if they were in zero-sum games. In a zero-sum situation all sorts of "irrational" aberrations become quite sensible (tribalism, nepotism, corruption, secrecy, rigidity, etc.). When jobs are scarce it also becomes difficult to dismiss workers and their performance becomes much less reliable. Once the system has accommodated itself to this fact, individuals at all levels hedge their estimates, plans, and reports to allow themselves wider margins of safety. The organization finds it can no longer trust its own data, and this leads to other aberrations.

Indeed, the wastefulness and unreliability the outsider reacts to so sharply in an LDC may be the aggregate result of well-intended efforts to incorporate *proximate rationality* into decision-making. Local officials will be proud of the flexibility and concern they show without understanding that this very tolerance is the root cause of the system's weaknesses in its overall operations.

It would be absurd to claim that this depiction represents all LDC administrative systems. The point I make is simply that in sponsoring induced rural development we will usually be dealing with coherent administrative entities, already established for this purpose. Familiar looking in structure, these organizations embody unfamiliar premises which strongly condition how they operate. If we intend to use them as instruments to effect change, we must understand how they are likely to perform.

C. Administrative Reform and Rural Development; What Do We Know, What Do We Do?

The concern of this book is the intelligent management of induced rural development. This requires that we understand the perspectives from which the subject has been viewed—the strategies which have informed efforts to define and attack rural development problems.

A distinctive feature of these strategies is their neglect of administrative and organizational factors. But this neglect has not been total. If there is no extensive work on the planning and management of rural development, there are many country studies. And a bevy of techniques and arrangements, essentially Western, have been urged upon Third World countries to improve the organizational

basis for their rural development.

Some of the country studies are so vivid and analytically informed that they have become classics whose contents should be known to any serious student of rural development. For Mexico we have Grindle's *Bureaucrats, Politicians and Peasants* (1977); for Egypt, Harik's *The Political Mobilization of Peasants* (1974); for Tanzania, Hyden's *Beyond Ujamaa in Tanzania* (1980); for Zambia Bates' *Rural Responses to Industrialization* (1976); for India, Heginbotham's *Cultures in Conflict* (1975); and for Thailand, Rubin's *The Dynamics of Development in Rural Thailand* (1974). These are perhaps the best known, but our bibliography contains many monographs serving the same purpose.* With only a few exceptions they show that the image of the well-informed, hard working official making good use of scarce resources (the type of service professional one may encounter in provincial headquarters or the capital city) does not extend very far into the countryside.

The general picture is of a sometimes harried cadre of ill-trained and poorly supported "bicycle men" who represent the government to peasants. The circumstances and operations of public service bureaucracies in LDCs at the contact level depart radically from the situations assumed in Western management theory. It becomes a legitimate question whether the Western experience can be transferred into the poorer third world countries (see Mendoza in Stifel et al. 1977:61-71). Leonard (1977) attempts to show that it is possible, with data on the Kenya extension service, but the issue remains open.

Interventions: The Quest for Better Organization and Administration

The label "intervention theory" owes its existence largely to Chris Argyris and Garth Jones, who in the late 1960s proposed that researchers should take more active roles in the organizations they were assisting (Argyris 1970, Jones 1969). Since the problems of modern bureaucracy are at least in part self-caused, these theorists suggest that the organization itself be viewed as a client system. By proposing modifications and participating in their implementation, the researcher would gain an understanding of the dynamics of complex organizations. The aim should be to explore "new designs of technology, administrative controls, and leadership styles" (Argyris 1970:4). This emphasis is today called organizational development (OD).

The concept of intervention theory has survived and continues to be useful (Jones 1969:115-132, Hornstein et al., 1971, Golembiewski and Eddy 1978, also Zaltman and Duncan 1977).

First, it denotes an array of measures—training, job specification, procedural changes, structural reorganization, etc.,—which are at least partial substitutes for each other. All have face validity; all promise increased efficiency. But they will not be equally effective in practice; the analyst requires astute judgment in recommending which ones suit a client's situation. Is more training really the need, or is low morale the basic problem?

Second, the concept implies that interventions often incorporate several elements. Rather than thinking of a given type in absolute terms—e.g., divisionalization—the analyst should employ an instrumental framework which considers the combined effect of a number of proposed changes.

The organizational improvement approach looks for leverage effects. We intervene in the organization so it will be more effective. We aim for innovations which will exert maximum leverage within the system as presently constituted. Some interventions which appear theoretically attractive might fail to tap the momentum in a specific system.

Third, the concept recognizes that different contexts should condition one's choice of particular reform devices. If Third World administrative systems have special characteristics, these traits become factors affecting the likely success of different interventions.

A management consultant can consider at least seven broad types of intervention. Some of these will be taken up in more detail later, but a preliminary review is useful.

1) *"Rationalizations."* As already noted, officials within LDCs view their problems as deriving from poverty, and in particular from lack of manpower and finance to carry out desirable programs. They may admit their systems are unproductive, but they often agree that the weaknesses can be cured by certain types of administrative "rationalization": (a) imposition of work targets to spur output; (b) clarification of duties and supervision; (c) a change in the personnel occupying posts; or, (d) reallocation of agency responsibilities perhaps requiring the addition of new bureaucratic units, but ones modelled on present structures. If there is a "shake up" of personnel or arrangements the problems will be resolved. Chambers calls such solutions "red herrings." They leave the productivity of the system untouched while creating the illusion that significant change is underway

*Additional sources on India include Breman (1974), Hunter (1970), Hunter and Bottrall (1974), and Franda (1979); on Thailand, Mosel (1957), Siffin (1966), and Neher (1974); on Tanzania, Cliffe et al. (1977), Finucane (1974), Ingle (1972), and Von Freyhold (1979). For China, see Bernstein (1977) and Cell (1977). For Malaysia, see Ness (1967) and Esman (1972). For Kenya, see Leonard (1973, 1977). For Nigeria, see Harrison (1969), Igbozurike (1976), Beer (1976), and Cohen (1974). For Senegal, see Schumacher (1975), O'Brien (1979), and Moulton (1977). For Sierra Leone, see Barrows (1976), and for Ghana, Price (1975). For Sicily, see Schneider and Schneider (1976). More generally, see Antoun (1979) on the Mid-East, Miller (1979) on Asia, and Schmidt et al. (1977).

(in Hunter et al. 1976:430-432). Any gains will be quite temporary.

2) *Training*. A second intervention assumes that people don't fully know their roles. At independence most LDCs lacked indigenous managerial cadres. In Africa alone the 1960s saw the establishment of over 40 institutes or schools of public administration (Rowland in Adedeji and Baker, 1974:63)—and the entrenchment of a "training-ism" ideology. (Schafter, 1974). A general introduction to the topic is found in Lynton and Pareek (1967), and supplemented by the Stifel (1977) collection. Other sources include Dresang (1973), Goslin (1975), Gould (1977), Inayatulla (1975), Rweyemamu and Hyden (1975), Spitzberg (1978), Stone and Stone (1976), and Zaltman and Duncan (1977). Along with increased skills training went a more general concern with the effective performance of new roles in development (see Hopkins 1971 and Powelson 1972).

The visitor to a typical African state will discover not one but often three or four rival training institutions, established in the late 1960s and early 1970s to perform the same function. For example, Tanzania has set up 13 competing sub-degree certificate and diploma agricultural colleges—all requiring directors, heads of divisions, departments, houses, vehicles, students and staff. The propensity of LDCs to multiply institutions continues unabated, but since the mid-1970s the donor nations have begun to ask that existing institutions be used more effectively. In part the "shortages" of high-level manpower in a country like Tanzania or Zambia are caused by the elaborated institutional structure that has grown up since independence.

3) *Decentralization*. A third approach is to decentralize finance and coordination from the capital city to the countryside. This commonly takes the form of delegating some powers, rather than full decentralization. Perhaps the best documented attempt in this direction is the Indian Panchayati Raj structure. For a small sampling of the African materials see Johns (1975), Malhotra (1978), Vengroff (1974) and Picard (1979). Analytically, decentralization involves the same issues which have plagued attempts to establish local councils and similar institutions over the years.

4) *Planning*. A fourth device concerns improvements in planning. In the 1960s it was economic planning. In the 1970s it is often "regional planning" (an unfortunate term which in English covers supranational as well as subnational planning). The best starting references remain the classics from a decade ago: Waterston (1969), Gross (1967), and Apthorpe (1970). But the literature on the planning experience of particular countries is immense, as our bibliography indicates. By the late 1970s authors had begun to question the effectiveness of economic planning itself (see Ackoff 1977, Dubnick 1980, Killick 1976, Powelson 1972:196-214, and Strachan 1978).

A major weakness of economic planning when used to guide LDC investment is its lack of procedures for integrating area-based planning into the decision process. Geographers have argued for the "growth pole" concept (Darwent 1969 and Sen 1971) and emphasized the role of transportation networks (see Johnson 1970, Hay 1973, and Pease 1976). In practice growth-pole planning has been ineffective and poorly received (see Sternstein 1977 on Thailand and Conroy 1973 on Latin America) but it led to a wider concern with regional planning (Mosher 1969, Belshaw 1977, Mabogunje and Faniran 1977, and Bendavid-Val and Waller 1975). Rondinelli and Ruddle (1978) expanded this concern into a useful overview of rural development see similarly Brookfield (1975), Dopfer (1980), and Elliott (1975).

In all fields of planning some works emphasize substance and others process. Contrast, for example, Stamper's exhaustive (1977) review of how family planning is treated in national plans with the much more useful volume by Corsa and Oakley (1979) on how programs operate. Ahamad (1973) reviews manpower forecasting, Colclough (1977) poverty-focussed planning, and Mc Ginn et al. (1979) educational planning. For a skeptical view of educational planning that is refreshing, see Jacob (1979).

The 1970s were the heyday of family planning in theory if not in accomplishment. Yotopoulas (1977) provides an overview of the issues, as do King (1975), Ridker (1976), and Hauser (1979). The administrative aspects are treated in Ilchman et al. (1975), Keeny (1972), Simmons (1975), and El-Bushra and Perl (1976). Opposing viewpoints on the policy question are contained in Godwin (1975) and Smith (1973). Selected case studies are provided by Cuca and Pierce (1977) and Epstein and Jackson (1978). For the Indian experience see Blaikie (1975) and Elder (1972); for Bangladesh, McCord (1973). Questions have been raised about the advisability of the whole approach by Weaver (1978), Mass (1976) and Stucki (1971).

In comparison, the detailed material on agricultural planning is extremely thin. About fifty titles on project planning for LDCs are in print, but we have only *two* book length treatments on agricultural planing, Cochrane (1974) and Kulp (1977). The bald fact is that advisors on "development" over the past three decades have not known enough about agriculture to write books. Instead we are bequeathed a huge econometrically-oriented literature on economic, regional, educational, and family planning.

Within the LDCs, vast efforts and resources have been expended to create new planning structures and to improve planning procedures. In some countries the aim has been to assist decentralized administration by increasing the numbers and quality of government planners working in rural areas. Sometimes these rural planners have received intensive training in particular planning techniques (usually project planning). Other planning interventions include: (a) requirement of detailed "action plans"

before projects could receive district approval; (b) investment plans cross-linking investment to manpower development and the recurrent budget (see Caiden and Wildavsky, 1974); (c) forms of time budgeting; and, (d) the addition of completion indicators to improve the monitoring of implementation (see Chambers 1974). Another procedural innovation that sometimes suited LDCs was the replacement of fixed plan periods by "rolling plans" in which targets were revised annually to reflect changing experience. Despite these interventions there is an emerging consensus that planning procedures have not made much difference after all.

The press to plan has had two unanticipated effects. *First*, administrators found they needed to weigh the costs of acquiring the vast amounts of data demanded by planners, or as Ilchman has put it, to determine "the point of optimal ignorance". This led to the conceptualization of management information systems (Chambers, 1974, Franklin and Thrasher, 1976). The *second* discovery brought about by attempts at economic planning was the glaring lack of coordination between field agencies responsible for rural development. The label "integrated rural development" became current. It continues to be used--in quite contradictory ways (see Economic Commission for Africa 1971, Orhan 1975, Ruttan 1975, Waterston 1975, Weitz 1979 and Yudelman 1977). The original meaning was the coordination of the various components required for development in a given territorial unit. Then integrated rural development came to be attached to programs of a multi-sectoral nature, even though established separately from existing structures. Finally the World Bank has defined "integrated" to mean that all segments of the population would be involved, e.g., including women and the poor.

5) *Packages of Inputs.* Another type of intervention, employed mainly by agronomists, has been to furnish field staff with preplanned and self-sufficient packages of innovations. Here too there are semantic problems: when economists write about "package programs" they sometimes mean integrated development programs whose components include an income generating measure, so that the process can become self-financing. When agronomists write about "package programs" they usually mean that a group of items is being introduced in a way that avoids the usual blockages within the administrative hierarchy.

6) *Bureaucratic Bypasses.* A more drastic arrangement abandons the existing system and creates a parallel organization, intended to function more efficiently in delivering a particular set of services. In Africa such organizations have come to be known as "parastatals." In England they are called "quangos." There are perhaps 1,000 of these in England, "public agencies established by statute or ministerial decision to perform executive tasks in place of central departments or elected local authorities."* In Africa a major feature such agencies are granted is freedom from usual civil service regulations in respect to recruitment, administrative procedures, incentives, and internal organization. This freedom is justifiable only if parastatals do yield higher outputs and avoid the adverse traits of the systems they replace.

7) *Autonomous Project Organizations.* A variant from parastatals is the *autonomous development project*, independent of the general administration, a favorite means of the World Bank and some other technical assistance agencies. As Caiden and Wildavsky observe, this is a self-defeating strategem if the purpose is to encourage integrated development (1974:61):

> The general effect is that of an "enclave," an oasis of certainty in an environment of uncertainty. The purpose of creating the enclave is to salvage an area for investment· the result is to decrease total resources available to the government...

The fullest example of this type is the "turnkey project," where an outside contractor carries out all activities up to the point when the project becomes operational. This may dramatically speed the initial project establishment, but it often leads to a crisis when the new unit must be locally supported. More commonly, development projects consist of an amalgam of external and local resources with the donor agreeing to support project activities for a specified period. The increased resources are usually justified on grounds that the effort will serve as a "pilot project" for the larger system. In practice, as Korten points out in relation to family planning programs, a government will usually make its decision about a new policy long before the benefits from pilot projects can be empirically demonstrated (1979). Ruttan argues that hardly any pilot projects make the transition into general practice (1975), and several of us have maintained this weakness is generic to the whole strategy of creating autonomous development projects (Moris 1976, Korten 1980).

Improving Administration and Organization; Some Effectiveness Tests

How can we judge these seven kinds of possible intervention, to determine their suitability in particular situations? If there is no rigorous way to decide, there are at least a number of general tests of the promise of these devices. These tests take the form of questions:

1) How will the intervention work over time, especially the short and medium run?

2) How much discretion does the intervention assume

*Nevil Johnson, (1979) "Editorial: Quangos and the Structure of British Government," *Public Administration*, Vol. 57, p. 379.

on the part of the actors affected by it? How realistic is this assumption?

3) How elaborate is the proposed intervention, and how consistent is its elaborateness with the general characteristics of the situation?

4) What assumptions are embedded in the intervention about the larger setting in which it is proposed — especially assumptions about information, motivations, and orderliness and reliability?

5) How compatible is the intervention with other interventions underway or pending installation?

These questions can be weighed for any and all of the techniques and arrangements described in the previous section of this chapter. Here is an illustration of how they might be applied to consider whether one type of intervention, training, is likely to be effective in reforming the administration of rural development.

1) Will the effectiveness of the intervention change over time? A new organization establishing its roles and recruiting its staff characteristically generates a large demand for training, as does a nation in the decade after independence. The apparent success of training programs at this phase has on several occasions given trainers an aura of self-importance that belies the transitory nature of this demand. This is a major problem faced by African administrative training institutes. Training may give fairly dramatic results at early stages in organizational and national development. As the milieu stabilizes and interest groups become articulated, it may yield disappointing results. Intervention strategies should be matched against stages of organizational evolution. Both procedural changes and training inputs may give diminishing returns at the later stages.

2) What amount of discretion does the intervention assume on the actors' part? A major weakness of much training is its macroscopic coverage: It deals with more than is relevant. One must consider the actual and prospective positions occupied by the trainees. How much latitude have they for making changes? In organizational development one must influence the entire senior management group before training for individuals can show its potential. More generally, the assumptions in the intervention must be matched against the positional constraints within the client system, which in turn indicates the great importance of choosing an appropriate point of entry.

3) How *specific and elaborate an intervention is needed?* One typically finds that several technologies are available, ranging along a continuum from informal and flexible to highly developed and inflexible types of training. The rationale that favors a given type of intervention is usually stated functionally (i.e., "x" need should be met), but this can be interpreted as blanket approval to introduce an unnecessary level of elaboration. Training approaches range from nonformal, on-the-job training to formal seminars and courses. One needs to guard against the Western tendency to apply high technology versions of needed interventions—e.g., training village maintenance staff in computerized inventory systems.

4) What organizational correlates does the intervention presuppose? Most interventions contain embedded assumptions about the larger administrative system: information availability, motivations of actors, the quality of support services, etc. They also draw upon belief systems. Training in personnel management often assumes time and work accountancy, promotion by merit, arbitration procedures, accurate records, and the security of personnel data. If personnel procedures based on these assumptions are uncritically interjected into an administrative system which is internally polarized along political and ethnic cleavages, they may further increase the exercise of power by one group. Similarly, "training for teamwork" can become a bizzare exercise when conducted in a strongly hierarchical setting, where the system works against the realization of training objectives. Interventions will also differ in their duration and in the period necessary before they will show their full impact. An advantage of training as an approach is that it can be divided into short segments, and does not make further demands on the client system once it has been completed.

5) What complementarities among interventions exist. A major reason for the perennial popularity of training as a form of administrative intervention is the ease of combining it with other approaches. Training per se requires no major structural changes. Most large organizations have procedures for the short-term replacement of staff and in any case have some managerial underemployment. Doubts about the long-run impact of training can be assuaged by the esprit-de-corps it supposedly cultivates among participants, and by the belief that more training constitutes the essence of "scientific" management. Finally, the intervention may require no change in group boundaries.

Alas, individual interventions are usually justified by case evidence suggesting their success, and there are few if any analyses of how complementary interventions can best be put to work. Yet it seems likely that finding an effective *combination* of interventions is what accounts for success.

Conclusion

In this chapter we have reviewed the broad topic of development strategies for nations and the narrower question of intervention strategies for organizations. The modifier "intervention" signals that we are dealing with second order issues, assuming a larger commitment to bring about induced rural development for the citizenry. This assumption is what distinguishes reform from revolution.

Sometimes administrative reform is not desirable, because the organization targeted for improvement is a bad choice (inappropriate, too costly, corrupt, coercive, etc.) for the intended purpose. But this judgment must often be based on faith, as rural development typically exhibits a long lag between organizational inputs and anticipated benefits. We return to this issue again near the end of this book. For the time being, when analyzing rural development administration, we shall assume that making field organizations more effective is desirable.

There is an ethical dimension to intervention. There will be circumstances when a practitioner should consider withdrawing, or even actively obstructing administrative reform if it becomes apparent that:

1) the intervention is intended primarily to increase the power of senior managers against that of their junior staff;
2) the costs will tremendously outweigh the likely benefits;
3) the chances of achieving success are extremely small;
4) the program will benefit only a few individuals, perhaps those who are already rich or in positions of power; or
5) the impact will be disastrous economically, socially, or politically.

CHAPTER TWO

Programs and the Factors Affecting Them

Choosing an Organizational Framework

Blueprint vs. Learning Approaches to Project Design

Program Design

Program Implementation

Program Contexts

The literature on public policy analysis distinguishes two opposed conceptions of implementation — "blueprint" vs. "learning" models of applied organizational action.* The "blueprint" approach derives from economics. It sees the task of rural development as the design by planners of arrangements which can produce needed outputs—i.e., creating effective *projects*. The "learning" approach is based on managerial psychology. It sees the task of rural development as encouraging reactive and creative capability within field agencies so they become intelligent—i.e., creating *programs* whose internal organization and outputs change in response to analyzed experience.

Herbert Simon has pointed out that these contrasting viewpoints rest on unexamined and deeply rooted philosophical notions about social action, or, in his words, rival "models of man". This chapter examines the interplay between these two viewpoints. It specifies the premises we bring with us when trying to induce rural development. It takes as its point of departure a statement by William Whyte (1967:22):

> I believe that many organizational problems arise because the leaders of those organizations are attempting to apply to the human problems they face an inappropriate theoretical model of organization. I also believe that most men carry in their heads an extremely limited repertoire of models.

Nothing is more important than the ability to enlarge these repertoires, *and* to establish the conditions under which particular models are likely to be relevant. This chapter examines the basic issues involved in program design, identifies the key problems of program implementation, and classifies the different settings in which programs are located. These are the basic considerations in efforts to devise and apply realistic models of rural development.

*I am indebted to David C. Korten for this distinction. His paper (1980), underlies the argument of this chapter. See also Sweet and Weisel (1979) and Berman (1980).

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A. Choosing an Organizational Framework

When moving from general intent to specific cases, a government has to decide whether to create new executive agencies responsible for its stated goals. Policies, programs, and projects are all a part of induced rural development, but they can and do exist independently of each other. Just as the dictionary meanings of these terms overlap, so do their organizational boundaries in real life. In this chapter I use *policy* to mean a general guideline that ordinarily applies throughout the rural sector; *program* to be any organizational nucleus established to carry out policies; and *project* to be a specific field unit responsible for generating specified outputs. We move from broad goals to concrete results, and a program is a half-way house between where staff work together to try to design projects and to make projects happen. In the dictionary sense a "program" may only be a budgetary heading in a plan document (and thus exist nearly everywhere). In the sense of this chapter a government has the choice whether it wants to establish program entities *above* the level of the individual project to assist in promoting rural development.

The array of rural development programs and projects in most LDCs is remarkably broad. (See Table 2.1). Not every country has all 50 types of projects, nor are its agencies distributed in every province, but on the whole the inter-agency program context will itself constitute a problem. The outside expert expects to recommend a new department, only to discover there are already three departments competing for funds and attention in a given field, e.g., a university's nutrition unit, the Ministry of Agriculture's FAO nutritionists, and the Ministry of Health's WHO nutritionists. Questions of attachment and interorganizational linkage arise almost immediately; it becomes a very genuine issue whether to start afresh with a fourth field organization. How much is to be gained by establishing a UNICEF-assisted National Nutrition Center with the intention (but not the power) to coordinate all existing programs? The government may welcome the new "program" even when it is not needed, in order to obtain the vehicles, microscopes, and buildings the donor will bring (and thus all but guarantee program ineffectiveness for the unfortunate doctors who get recruited).

The potential alternatives are shown in Table 2.2, arrayed in order from those involving minimal change up to a complete break requiring the establishment of a parallel hierarchy (ministry, authority, board, etc.). In the former case one begins from an analysis of the type we have described in chapter one. In the latter, with the formulation of a project or program design (the "blueprint"). *Which* of these approaches one adopts is generally not a matter of choice, but will be specified by the client (or by a major donor).

Functional Autonomy?

The question of whether to set up an administratively discrete service delivery system focused on a particular function (or area) or to merge a targeted emphasis into the larger system, exists in virtually every field of rural development. For an example let us use the provision of birth planning services. Can more be achieved from a given input by establishing a distinct hierarchy of family planning technicians or should this staff be integrated into a combined framework for health services, since the latter is already present in most communities?*

Corsa and Oakley discuss this issue at some length, and offer three criteria (1979:233-34): (a) the extent to which the technology used requires personnel and skills similar to those established for other, related services; (b) the extent to which the other services are already available and in effective contact with rural and disadvantaged client groups; and, (c) the extent to which a multi-purpose system can effectively meet program objectives. The rationale they give (they note it is only weakly supported by scientific evaluation) for an organizationally distinct, functional service could apply to almost any technical function within rural development. They argue (1979:235) that the output per full-time worker (in contrast to multi-purpose workers) should be higher because the specialist will: (a) be more interested, knowledgeable, experienced and skilled (would to God this were true!); (b) require less training and can be selected from the target area; (c) will give first priority to the specialized function without diversion to other tasks; (d) can provide more support to the early adopters of technology; and, (e) can make more efficient use of specialized equipment and supplies.

Note that this argument is one-sided. It doesn't, for example, consider the costs and difficulties involved in linking the specialized service to other related functions in the same field (e.g., family planning with maternal and child health care, or agricultural credit with extension). Experience does suggest that one way to emphasize a particular program, in the short to medium run, is to give it autonomy and generous support. But the overall sound-

*Rural health services are not separately discussed in this volume, but for those who are interested there is a substantial literature. An excellent case study to accompany the Corsa and Oakley volume is by O'Connor on Afghanistan (O'Connor 1980). Other sources from the bibliography include a general introduction by Bryant (1969) and an excellent bibliography by Bechtel (1980); review of alternative systems by Denny (1974) and Djukanovic and Mach (1975); training by Elliot (n.d.) and Scotney (1975); evaluation and management by Newell (1977), Taylor (1977), and WHO (1974); and case studies of China by Lampton (1977), New and New (1975), and Wilenski (1976). Dorozynski (1976) gives a comparable "barefoot doctor" case from Iran.

TABLE 2.1
Types of Rural Development Programs

I. LAND USE
- 1) Agrarian reform
- 2) Land use regulation
- 3) Farm planning & consolidation

II. WATER DEVELOPMENT
- 4) River basin & power projects
- 5) Irrigation
- 6) Domestic water supplies

III. NATURAL RESOURCES
- 7) Fisheries development
- 8) Forestry & agro-forestry
- 9) Recreation & conservation
- 10) Parks & tourism

IV. LIVESTOCK DEVELOPMENT
- 11) Range & beef development
- 12) Dairy development
- 13) Smallstock & poultry
- 14) Livestock marketing

V. CROP DEVELOPMENT
- 15) Agricultural research
- 16) Crop development & parastatals
- 17) Input supply & "green revolution"
- 18) Horticultural development

VI. EXTENSION & TRAINING
- 19) Agricultural information services
- 20) Extension services
- 21) Agricultural education, farmer training
- 22) Youth & school leaver schemes

VII. FINANCE
- 23) Crop finance & insurance
- 24) Farm credit
- 25) Rural taxation

VIII. CROP MARKETING
- 26) Marketing cooperatives
- 27) Rural markets & institutions
- 28) Price control & policy

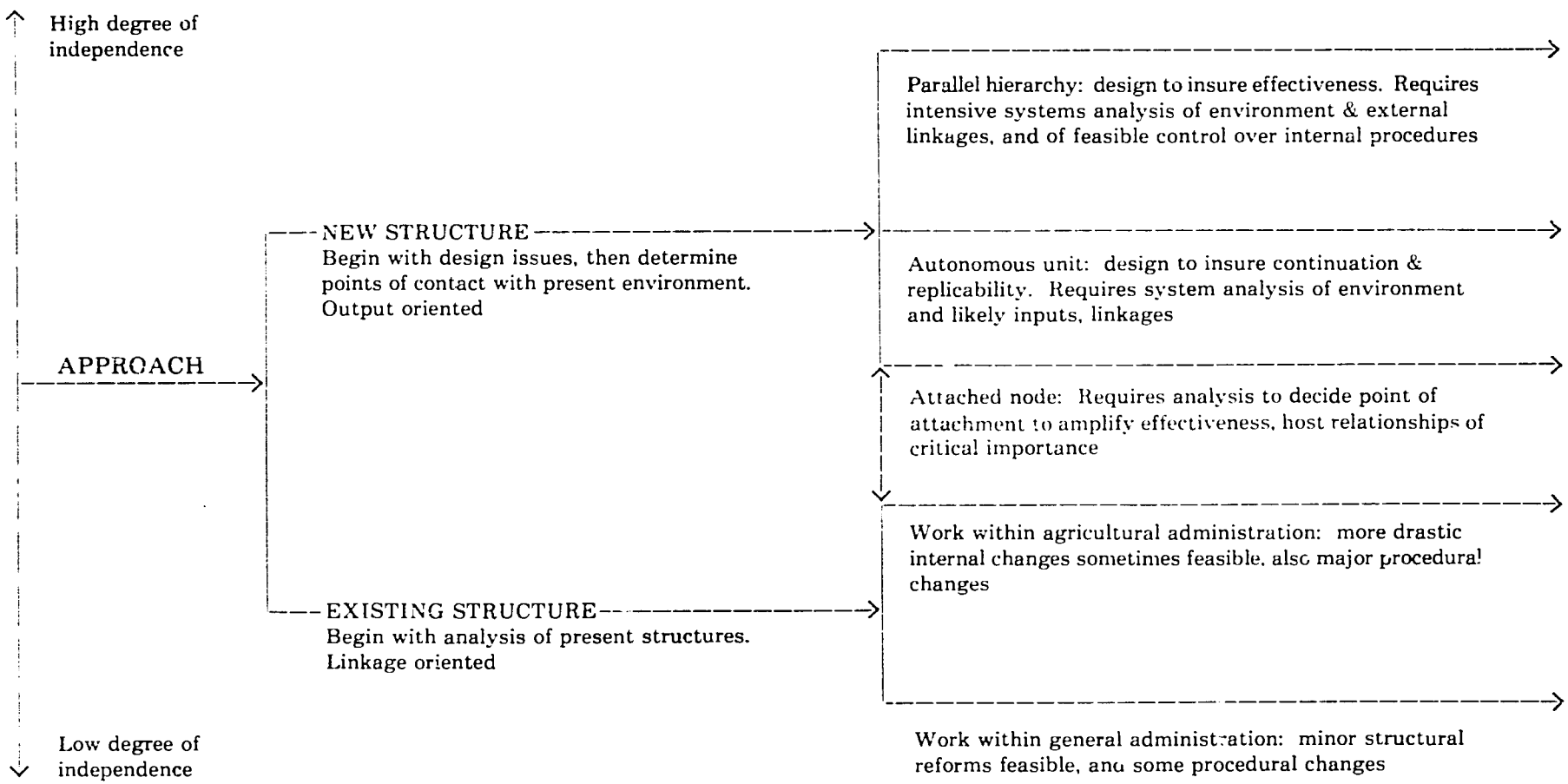
IX. TRANSFORMATION
- 29) Mechanization
- 30) Resettlement
- 31) Land settlement schemes
- 32) Production cooperatives

X. RURAL WORKS
- 33) Energy & electrification
- 34) Rural roads & transport
- 35) Rural works programs
- 36) Agric. processing & small industries
- 37) Village & appropriate technology
- 38) Rural housing, sites & services

XI. RURAL WELFARE
- 39) Nutrition
- 40) Women in development
- 41) Rural poverty & refugees
- 42) Self-help projects
- 43) Community development & leadership
- 44) Family planning & population

XII. SERVICE ORGANIZATION
- 45) Migration & urbanization
- 46) Rural health services
- 47) Rural education
- 48) Communication & adult education
- 49) Integrated rural development
- 50) Rural planning

TABLE 2.2
Degrees of Program Autonomy



ness of the technique depends much upon the particular situation, the particular mix of goals to be served, the opportunity costs of the arrangements and the time perspective applied in program design — not to mention the political realities of the situation.

Effects of a Program's Location

Its point of attachment to the administrative system has a large influence on a unit's productivity, and always represents a trade-off among conflicting priorities. New structures give greater independence, but at a risk of lessened impact. A small, autonomous project will not have enough leverage to change the larger system; over time the system's deficiencies will appear in the autonomous unit as well. But the choice of working within present structures subjects a team to existing constraints and requires sustained pressure from within. The higher the unit is located in the hierarchy the greater its potential power, but the farther it will be from the access bureaucracy it is trying to reform. On the other hand, a unit located at a low level in a hierarchical system may lose the ability to exercise discretion. In the Masai Project, for example, because we reported to officials below the district level, it was not even possible to change the design of a cattle dip ("official policy"). One weakness of much rural development training is that the issues covered are those appropriate to, say, a prime minister. Then trainees go back to field jobs, at such low levels that they may not even control their own department's vehicles.

Problem: Organizing Coordination

The biggest organizational location problems involve efforts to foster horizontal inter-agency linkages. To the analyst it will seem clear that if the Ministry of Agriculture's extension section would cooperate with the parastatal Crop Authority, desired improvements could be realized without new expenditures. Here one needs an insider's understanding of the bureaucratic system. In LDC administration, with stress on vertically aligned authority, it is exceedingly difficult to insure continuing interagency linkages of an operational nature. Typically we see a few "successful" meetings under the sponsorship of the new "coordinating" unit, until the outside sponsor stops paying incentive allowance. Then a tug of war ensues to determine which ministry will capture the unit, or else it is simply ignored. Weaknesses of horizontal coordination have strong adverse effects in agricultural development, because field enterprises often require more than one kind of technical support.

The Allure of Reorganizing the Resources

To work within present administrative structures means in practice to accept the system as it is or to try to reorganize its components, facing the combined opposition of those whose interests are affected. An outside analyst looking at the field bureaucracy will sense that the existing resources, if unhooked from their hierarchical frames and deployed more imaginatively—perhaps in problem-oriented "barefoot doctor" teams of paraprofessionals?—might accomplish more. Indeed, the rural service delivery systems in LDCs are usually *large* organizations, sometimes employing more staff and as many vehicles as a comparable service in a developed nation. The numerous micro-hierarchies within the administration tend to be expensive structures when evaluated per unit of output (time with farmers), even though low wages are paid the contact staff. Could not these same resources be used more flexibly to bring professional staff into direct contact with clients?

The answer is probably no—not unless the whole system is reorganized simultaneously. It is the rewards and sanctions perceived from within, and the constraints that impinge upon the contact cadre, which condition their performance. A strongly hierarchical Ministry of Agriculture cannot divest itself of built-in structural tendencies simply by reshuffling salaries and duties at the contact level. To slow down the rotation of staff between assignments and to make them downwardly instead of upwardly accountable the whole organization must be changed. There are studies which illuminate this issue (see chapter five) as well as a suggestive literature on nonconventional health service delivery systems (see the above listing of sources).

When rare opportunities for fundamental reorganization do occur, there are strong reasons to make maximum use of them, all the while recognizing that our analytic wisdom is insufficient to the task. The needs are compelling: The productivity of existing field units is very low, below the threshold for effective interaction; yet the poorer LDC's depend on agricultural exports for their foreign exchange; and women, the poor, and the landless remain largely outside the sphere of official rural development as presently constituted.

B. Blueprint vs. Learning Approaches to Project Design

The "blueprint" approach leaves the designer outside of the field organization. Instead, planners ("econocrats") request information from the field; process the information into projections; diagnose emerging problems where output is falling below what is needed; and establish projects to rectify the shortfall. Then project design means to choose among existing institutional models (farmer training center, vocational high school, etc.) according to the sectoral composition of aggregate need, and next to pare down these institutional requirements until a favorable benefit cost ratio emerges. Of course, planners

need overall guidelines, a "strategy". These they obtain from the long-term perspective plan in regard to goals, and from the five year plan in regard to sectoral commitments. Planning efforts become polarized at the macro and micro extremes. This is a highly rationalistic view of policy execution. The planner assumes access to "the big picture," and relies on plan documents as the physical record of commitments among participating agencies. "Programs" simply become budgetary headings within the plan document, typically constituting all the projects of one type that a particular agency is expected to supervise.

These presuppositions vastly simplify the task of program planning. To economists it is not immediately apparent that one needs programs in the organizational sense. If the institutional environment already exists, one merely indicates that field projects will rely on established commercial and public services. The other aspects of program design are either specified in the institutional template the planners bring to the situation, or consist of marginal adjustments which can be left until fairly late in the planning process. Program organization follows after the allocative decisions, and will be carried out by a different set of actors recruited to "implement" development. Thus the blueprint approach splits program planning and organization into three disconnected segments: an initial determination of resource requirements (often reached in advance of operational experience), a scheduling in time and space of anticipated implementation activities (generally the last phase of the planners' formal task), and the subsequent establishment or assignment of an operational field unit.

Paradoxically, programs do sometimes figure prominently in the plan, since one cannot afford to describe each project individually for the whole nation. The label "program" connotes much that is essential in rural development—linkages, coordination, coherence, feedback mechanisms—and one soon forgets that it exists only on the pages of the plan. What one gets under the blueprint approach is budgetary coherence, not real-life organizational capability outside the planner's office. Once disaggregated into component line items, assigned to various agencies operating at different levels, and allocated territorially, a budgetary program becomes invisible. The sufficiency of resources and the coherence of concept in the plan documents then constitute a trap. Causal linkages are implied which in fact are not and never will be operational unless substantial extra effort is generated.

When applied to rural development projects, the major flaw in blueprint (or "top-down") planning is the strong assumptions which must be met before it will work. These are: (a) a clear specification of goals in advance of design, (b) a fully adequate organizational blueprint which anticipates all eventual needs, (c) firm control over the field units which can supply high quality monitoring information, (d) project staff which can realize targeted outputs on schedule, and (e) a stable environment where the ancillary linkages are already operative. And, of course, one assumes the planners are interested in their project and have direct access to the ears of decision-makers.

In a much cited statement Chambers characterizes the present pattern of rural development as "planning without implementation" at the center, and "implementation without planning" in the field (in Leonard, 1973:16). Again and again the typical failings of field units reveal inadequate organizational intelligence and adaptability in their own operation: rigid adherence to targets long after circumstances have changed, crises which could have been anticipated, spare parts not ordered in time, a lack of contingency plans, and so forth. More generally the evidence shows that rural development targets are not being achieved, with the prospects in Africa becoming particularly bleak (Lele 1981).

The Alternative to Blueprints

The contrary view was at first termed "incrementalism" because of its insistence that in public policy complex problem situations cannot be tackled in their totality. They must be dealt with step by step as political opportunities present themselves. This is Lindblom's concept of "the science of muddling through" (1959).

Incrementalism stresses that in the real world of applied policy making: (a) information is *always* partial and often faulty, (b) goals must often be left vague to avoid antagonizing groups whose support is required, (c) choices are highly constrained by prior commitments, (d) the consequences of actions in a complex system are unpredictable, (e) interests are pluralistic and frequently contradictory, (f) the situation changes so rapidly that the "big picture" will usually be out of date, and (g) one has only weak control over the instruments of policy execution. Denton views incrementalism as embodying a trade-off between "unmeasurable programs or unacceptable goals" (1975). Killick shows that development planners customarily assume political conditions which are violated at nearly every point in the typical LDC situation (1976). Political scientists warn that the process of consolidating national opinion to support a clear-cut development "strategy" in the sense demanded by economists can be very costly of hard-won political capital.

A limitation of incrementalism is its preoccupation with the decision-making process. This is but one aspect of organizational functioning. If incrementalist views of the nature of decisional contexts are true, then a criterion of organizational performance should be whether the corporate group *can learn from its mistakes*. In place of the pessimistic premise that decisions are always confined to single steps, the focus shifts to look at the conditions under which organizational performance improves. Does an agency begin to anticipate changes in its environment?

Does it avoid repeating the same errors? Does morale improve? Can it overcome constraints which formerly crippled output? Does it change its outputs to capitalize on new opportunities? Questions of this nature see the field organization not as a static project tied to producing targeted outputs, but rather as a reactive organism acquiring intelligence and hence the ability to modify its own structure and outputs in response to changing conditions.

If we consider the situations that typify rural development administration, the superiority of the "learning" approach over "blueprint" planning is quite apparent. The administrative models on which LDC institutions have been based were imported. They often do not suit field requirements. The environment is in a constant state of flux—droughts, disease outbreaks, price changes, etc.—which necessitate that field units show reactive capability. Errors have been repeated time and time again; in some countries, we are now in the third cycle of the implementation of badly chosen policies. Communication to headquarters units is faulty, and the planners seem asleep. For these and many other reasons field experience in LDCs overwhelmingly supports the need for a "learning" approach to planning and implementation, one which puts intelligence back into the field organization.

Features of a Learning Approach

These difficulties easily overwhelm smaller rural development projects which lack specialized resources and the ability to mobilize high level support. Here Korten contributes an important insight: precisely because so many demands impinge on a field agency, if it tries to resolve them all it is likely to fail. Korten suggests (1980:499-501) that three learning cycles often characterize successful programs: (a) initial development of an effective program design, one that can potentially deliver the expected outputs; (b) learning how to make this design efficient within its local setting; and (c) finding ways to expand the model into other communities (replication). There is some overlap among the three learning curves, but the order of sequencing is vital. Any program which aims at cost-effectiveness before it has solved the more basic issue of establishing an effective organizational model will face severe strains and probable failure. Imported models usually do *not* produce the expected outputs, and it may take several years of experimentation before an adjusted model (sometimes very different from the first) is successful. In rural development we deal with so many unknowns that the initial learning may be slow and painful. By spacing the demands on a field unit one safeguards against overloading its limited intelligence capability.

The question then arises: must all programatic learning be concentrated within the field units themselves? Can in-country experience be transferred, so that the duration of Korten's proposed learning stages is reduced? If not, one must anticipate a sequential progression from very small experimental projects to pilot programs and eventually to a comprehensive model—see the discussion in Honadle and Klauss (1979). If a transfer of local experience is feasible, then a possible approach is to create a program-centered *service* unit above the level of individual projects. Its role is not one of control but of *assistance*. We know relatively little about how to organize downwardly accountable program-assistance units, but I suggest this remains a critical need within rural development administration.

Organizational learning requires the same capabilities as good planning, the capacity of a corporate group to act intelligently vis-a-vis group goals and activities. We can identify the properties that make learning possible by identifying what an individual needs in order to respond to changing circumstances:

1) a grasp of objectives
2) control over the resources being planned for
3) reliable models of external reality
4) information about past experience
5) sufficient interest to get the necessary planning done
6) familiarity with methods for making projections
7) open communication with all the parties involved
8) ability to get the principal doer committed to the plan
9) enough stability in the situation so that past experience is relevant

All these ingredients for rational action are present when an individual formulates effective personal plans

The same attributes are sometimes found within larger organizations. A small business firm which makes decisions frequently, has its own records at hand, a keen interest in survival, and a panoramic view of its environment can reach decisions in much the same fashion as an individual But Lindblom's fundamental insight was to realize that these implied correlates do not occur within large organizations unless they are created by the expenditure of extra effort and resources. In the diffuse interagency environment of public policy, the public interest may not be articulated. Program goals may be politically unattainable. The models of reality may be false, and the reality itself too complex to comprehend readily. Information is available only if the organization spends money to collect and process it, and consequently it may be badly out-of-date. The planners do not control the activities they are planning for...

If corporate intelligence needs to be exercised on behalf of rural communities and services, some way must be found to achieve the necessary levels of information, in-

terest control, and surveillance. For example, an organization can adopt planning methods that require only rudimentary information, such as contingency plans. Its lack of control over field units can be compensated for by attaching planners to those units, rather than to the headquarters organization. In the short run the rural administration cannot greatly affect the information available—this depends on previous actions—nor can it greatly increase the controls it wields, without counterproductive effects in the system. What it can do is deploy its resources more effectively to facilitate internal planning. Institutional mechanisms must be created by structural or procedural means to see that information is processed, interest is articulated, decisions are executed, and activities are watched. It is the need for extra investment in these four key respects that distinguishes collective planning from individual planning. The investment, of course, must include decision-making arrangements which give life and meaning to the planning.

We can now understand why implementation draws so heavily on the organization's planning capability. As Griffin and Enos point out, the economics literature has little to say about how one moves from general policies to specific field commitments: "the way micro-projects fit into macro-plans appears to be obscure" (1970:106). Yet the job of program preparation (which is a larger task than mere project appraisal)—the design of units, the drawing up of specifications for facilities and staff, the determination of operational targets, negotiation of financing, formulation of internal decision rules, the ordering of supplies, the scheduling of implementation activities, etc.—is an exhaustive process requiring much systematic preparation, and considerable iteration.

In stressing the difficulties of corporate planning, the Lindblom thesis risks missing the underlying point (as Dror has pointed out): to learn from experience an organization *must* be able to plan, on a continuing basis. That the task is difficult is obvious. But if small companies can react intelligently and quickly in fluid commercial environments, there is no inherent reason why public sector organizations cannot do likewise.

C. Program Design

The purpose of a rural development project or program is often dictated in advance, because of a sponsor's particular interests, because a new technology is available, or because the agency involved has an assigned function. The larger frame of reference also indicates some of the other ingredients in the design. The full array of potential frames of reference include:

1) village or community based action (needs analysis)
2) area territory based action (district, zone, sector)
3) technology based action (tractors, irrigation, etc.)
4) industry based action (coffee, tea, cotton, etc.)
5) technical function based action (extension, credit, etc.)
6) problem based action (disease outbreak, poverty, etc.)
7) special project/unit arrangement for action (pilot project, etc.)

Practitioners in a given field usually take their accustomed framework for granted. The community development literature assumes community needs take precedence; economists start from the nation and the sector, etc. A competent rural development administrator must be familiar with all of these orienting frames, realizing that there is no single optimum approach to rural development planning. The value of having a framework is obvious: it suggests immediately what components one will need to complete an initial design.

Rooting Goals in Reality

The key initial step is to specify *what* should be done, which obviously includes identification of goals (objectives), means (the components), and general location. In dealing with a well established institutional model such as an agricultural secondary school planners sometimes assume their model is complete and fail to check closely the internal adequacy of program components. For example, all across Africa the World Bank has financed technical high schools but failed to insure there are accompanying facilities to provide curriculum development, teacher training, supplies, and school inspection. A difficulty arises when general goals are known (e.g., increase peasant farmers' income and security) but the means are only partially identified. Then the problem-solving focus of the program should be clearly stated and provision made to revise objectives as the field program evolves. Under the USAID project format one must also state the assumptions which will affect achievement of each objective. In a sound program design these assumptions need to be checked for realism. *Perhaps the most critical requirement in a rural development program is that there be an income generating component* within the program or in its immediate environment. If the financing element in the design fails or involves untried ingredients (e.g., a new crop for which marketing and transport arrangements are not secure), all the other components may be put in jeopardy. Similarly, the choice of technologies (organizational as well as physical) should be very closely reviewed (Table 3.4 gives a checklist for this purpose.)

Identifying and Organizing Clients

The second set of design issues relates to the organization client interface. The specific target groups within the

receiving system need to be identified, and the reasons for their inclusion made clear. If the intended client groups do not currently participate at the local level—women, the poor, refugees, or minority groups—the advice of someone who knows how present service delivery systems operate is imperative. A major question is whether clients should be organized into cooperatives, farmers' committees, or even into a discrete scheme with a closed membership. This decision must be given substance by providing resources responsible for the extension function. For some reason natural scientists often assume client organization occurs "naturally" without specific means of support. To the contrary, the design should clearly indicate and provide for all the types of assistance which farmers will require. This may mean supplying resident field staff. The ratio of contact worker per farm households (1:200 up to, say, 1:1000) is especially significant (see Hunter 1978, Kulp 1977, and Leonard 1977). Of the three alternatives with regard to staffing—full-time paid staff, staff borrowed from existing organizations or "voluntary" service provided by participants—the second is the most problematic in an LDC context. Planning should include incentives for participation in both directions across the organization-client interface, for contact staff as well as for participating farmers.

Internal Program Organization

The third set of issues involves internal program organization. If there are full-time contact staff, it must be decided how they will be recruited and trained, what transport resources they can expect, how large will be their territory (or "caseload" in US parlance), and whether they will work only with designated participants. In the strongly hierarchical setting of LDC field services, even minor personnel issues can have a large (predominantly negative) influence on worker productivity: where will staff live (in villages?), how often and for what reasons will they be transferred, and to whom they are accountable (upwards or downwards)? Can they achieve promotions? Here is where we must be alert to the limitations of hopeful organizational models. Unless otherwise provided for, field staff will perform *in the customary ways* of the larger administrative system. A special danger when outsiders are involved is unrealistic expectations about how staff will behave. For example, if a team approach is necessary for program success this may represent a major innovation within the local service delivery system. If so, it must be explicitly safeguarded within the design.

Program-Environment Linkages

A fourth set of issues relates to the organizational, spatial, and temporal linkages between the program and its environment. A common failing is to assume that simply identifying the necessary linkages will be sufficient. Instead, designers must find out if these linkage needs will pose problems; and if so, what to try to do about them. Detailed locational questions must also be settled for each project component. Complications often arise when it emerges that the siting of facilities is viewed by local leaders as a purely political matter over which technicians have no say. Temporal linkages include both the broad phasing of activities into stages, and a specification how activities will mesh with the annual administrative and farming calendars. It is desirable to conceptualize project life in contingent stages, with options at hand if key components fall badly behind schedule. Local knowledge is vital, so that estimated durations reflect current experience.

Management

Finally, the program design must also indicate how the program will be managed: what its staffing will be, how staff will be recruited, who will be in charge, and to whom that individual (or team) will routinely report. In an LDC context, a consolidated line of support and supervision is essential. The administrative environment cannot be relied upon. If a project management unit is made jointly accountable to two ministries there is a distinct chance neither will give it what it needs. We should anticipate that review or policy structures may be ineffective or may operate differently from Western managerial experience. It is an advantage if the core powers and responsibilities of the respective managerial and supervisory levels are clearly spelled out. When technical assistance is involved formal approval of project documents will be required and perhaps even the drafting of enabling legislation. The completed design will usually include a draft budget and an accompanying implementation schedule.

Strategy and Design, a Blurred Relationship

The literature on the design of rural development programs is in its infancy. It is not clear where strategy ends and design begins. In the bibliography, initial sources which deal with design issues include: Downing (1978), Harvey et al. (1979), Honadle and Klauss (1979), Hunter (1973, 1978), Ickis (1979), Ingle (1979), Johnston and Page (1972), Korten (1980), Kulp (1977), Mann and Miracle (1975), Rondinelli (1977), Rondinelli and Ruddle (1978), Roth (1972), and Ruthenburg (1977). Less well reviewed is the central topic of this book: how does one move from feasible designs into effective implementation (Montjoy and O'Toole, 1979)? It is clear that questions of program organization, linkages, and management require detailed field knowledge. They are more appropriately decided by

a program's management than by an advance design team. An overlap between design and implementation stages is usually not feasible if the field program is funded as a distinct "project"; but genuinely conceptualizing—and treating—it as a *program* could allow key program staff to be appointed before all details of the field organization are finalized.

D. Program Implementation

Abbreviated case histories of rural development programs are available in several collections—notably Ahmed and Coombs (1975), Borton (1967), Bunting (1970), De Wilde (1967), Hunter et al. (1976), Lele (1975), Nelson (1973), Niehoff (1966), and Sheffield and Diejomaoh (1972). But I am not aware of any systematic, cross-sectional research designed to identify the typical implementation problems.* As a start in this direction we might begin with the thirteen reasons Fisher lists for project failure (1972:106-113):

1) Projects are designed externally and superimposed from outside.
2) Needed resources are not committed.
3) Goals and resource allocations are revised.
4) The project is not economically sound.
5) The project is not attuned to farmers' incentives.
6) Erroneous assumptions are made about the effectiveness or capabilities of institutions.
7) A pragmatic approach is not used in designing the project.
8) The project is not targeted towards a specific audience or clientele.
9) The project spreads its resources too thinly.
10) The project fails to take the human element into full account.
11) Various ministries involved do not coordinate their efforts.
12) Effective demand for the product falls short.
13) Yield or output projections are inconsistent with the level of management available.

Roughly half of these are design faults, built into projects and programs from the start. It is only because the effects materialize later that they seem to be "implementation problems". Fisher notes that the marked lack of organizational learning is common when projects are the principal implementation device (1972:106):

> My discussions revealed that there is no shortage of opinions about why projects fall short! ...Many experienced people have come to very similar conclusions on many points. It is unfortunate that we have no really satisfactory method of establishing an "experience bank" ...for agricultural development.

From East African experience my own list of typical implementation problems other than obvious design faults includes:

1) Bad scheduling. Programs are usually behind schedule, sometimes very seriously so.
2) Equipment failure. Equipment will often be late to arrive, quick to fail, and unsuitable for its task or for the local setting (lack of spare parts, etc.).
3) Technological surprises. The choice of new technologies often generates unanticipated problems, both for the service delivery system and for clients and their communities.
4) Political pressure. It often adversely affects the location of facilities.
5) Nonreplicability. Pilot projects rarely become replicable on a large-scale.
6) Insularity. Autonomous projects have an ephemeral and short-lived impact.
7) Undue optimism. Project and program benefits are often much delayed in arriving.
8) Underlying inertia. Service delivery systems often relapse within a few years to their former levels of low productivity.
9) Elusive aims. Certain types of program—e.g., range development, land use control, school-leaver assistance, etc.—seem especially problematic.
10) Technical assistance complications. Technical assistance projects exhibit special difficulties—counterpart availability and morale, etc.—which seem structurally derived.
11) Numbers and reports. Information acquisition takes up a large amount of managerial time and rarely gives proportionate assistance to project success.
12) Overexpansion. Successful programs tend to become involved with more sub-programs or innovations than they can realistically support.
13) Duplication. Rival units or agencies assigned to perform the same function create unnecessary duplication and a dispersion of effort.
14) Poor personnel management. Personnel are often badly chosen, poorly assigned, and frequently rotated.
15) Failure of intended benefit allocations. Certain client groups—women, minorities, the landless, and the poor—do not participate fully, while

*Development Alternatives, Inc. has a contract (1981) with USAID's Development Support Bureau which may generate materials of this type. See E. Morss and D. Gow, "Integrated Rural Development: Nine Critical Implementation Problems." *Research Note No. 1.* Washington, D.C.: Development Alternatives, Inc., 1981.

other privileged groups are able to capture program benefits.

16) Institutionalized ignorance. There is no carryover of experience from one project to the next.
17) Phasing. It is extraordinarily difficult to keep the various components of the more complex projects or programs in phase with each other.
18) Inappropriate organization. Organizational technologies imported from the advanced nations are dysfunctional in a local context.
19) Synchronization difficulties. There are frequent difficulties in carrying funds over the financial year and in matching the availability of funding to the crop season.
20) Imbalance of efforts and effects. As presently constituted, programs absorb a very large input of effort for a very modest amount of actual contact with supposed clients.

Our lack of guidelines for coping with these problems stems from the dysfunctional separation between "planners" and "implementers." It is as if policy-makers and planners consider that once project and program design is complete, nothing of analytic significance remains to be dealt with except the evaluation of field performance.

Implementation—the Basic Tasks

What are the key implementation tasks? In the beginning they are (a) recruitment of staff, either by fresh appointment or by reassignment; (b) finalization of any design details not covered in the initial plans; (c) location (if necessary) and negotiation of sites for any physical components; (d) preparation, approval, financing, and contracting of any new facilities; (e) negotiation of financing if not already provided; (f) specifying and ordering any equipment needed; (g) phasing activity targets by year and perhaps by quarter; (h) differentiation of staff roles within the field team; (i) development of operational rules governing staff activities (if these are not already specified); and, (j) introduction of the program to other agencies and to potential clients. All these preparations go on concommitantly. Several of them have fairly long lead times; they must be started early to be ready when the program begins.

Managing Implementation

One of a manager's most important functions at the initial stage is guarding a project or program's "performance envelope". The manager must keep on-going development decisions within boundaries where the project has a high likelihood of generating the anticipated eventual output. Performance is a composite outcome, determined by the interaction of many design features which jointly affect future capability. In any complex project the role of individual items may not be fully apparent on casual inspection. Each successive commitment in program evolution entails further restrictions on the overall design. At the time, many of these design details must be negotiated with outside parties not privy to the entire design process: the district government, the headquarters' ministry, the development bank, a donor, the party, etc. Some of these have no direct interest in the program's long run effectiveness, nor a clear picture of how it will operate.

So many variables influence final results that no preordained institutional model will suit local conditions precisely. The manager must remain sensitive to the changing implications of design decisions as the project takes root and assumes a definable shape (perhaps quite different from initial projections). An experienced manager will realize intuitively which features are vital if the project is to "fly". Unlike the situation in aircraft design, we have no formal body of knowledge to guide those making design decisions. One hopes the necessary lessons will be learned, and that the program project can respond to them. Otherwise, rigid and ignorant project design will produce a "fail sure" project whose ultimate weaknesses are built in from the start (Cunningham 1980). A field manager will often find it necessary to intervene upwards on short notice, trying to reverse or modify implementation decisions which would crucially affect ultimate project performance capabilities. This is a main reason why managers of rural development programs should be appointed before the major aspects of a design have been finalized. But the tendency these days under "blueprint" planning is to attempt more and more detail in the advance planning—and thereby to jeopardize actual performance capability.

It was argued in chapter one that the implementation phase is the first point where planners *must* come to terms with local administrative systems. From this point onwards a field program finds itself subject to all the usual pressures—increasingly so, as it changes its complexion from an external directive into a local entity which must operate within systems as they are. Bribes will be asked to clear equipment from the port; hints will be dropped that a certain contractor must be used; and so forth. Commonly none of these pressures (and their attendant delays) will be reflected in the official implementation plan. Around the world, it is remarkable how similar are the official documents for rural development programs and projects, as if variable contexts do not exist. Almost always, the documents assume implementation will proceed smoothly and on schedule.

New vs. Old Organizations

Implementation differs sharply depending on whether a unit is "starting fresh" or merely assisting an existing

agency with a new project. In the first instance, the major difficulties will be to assemble a field team on site and get sufficient resources to begin operations at the target date. In the second instance, one must fight to entice staff away from other assignments and to insure the new program develops an identity and momentum of its own. This can be a daunting task in established agencies, such as a ministry of agriculture where operating procedures are fully specified and the present system operates at a low level of productivity.

What Causes Delays?

We tend to blame inefficiencies in local administration as the principal reason for the chronic inability of rural development projects and programs to stay on schedule. Actually, of the four main reasons for delay only one is the fault of local systems in the field. All the others are at least in part the fault of the headquarters' organization or its associated donors.

Perhaps the least recognized reason for delays is the difficulty field programs have in obtaining the release of funds, upon which most other activities depend. One cannot hire staff or finalize construction contracts until funding is in hand. But there is usually a long lag between the preliminary obligation of funds to a program and their actual receipt in the field.

Sometimes the cause is simply the length and complexity of the funding chain: from a donor to treasury to a ministry to the province and finally to the program. More often it reflects extra procedures which either a donor or the Ministry of Planning attaches to insure that projects are well prepared. The allocation of funds is the last point where the superordinate funding agency can exert direct leverage. It often requests additional site descriptions, phasing timetables, appraisors' reports, cash-flow computations, and so forth, until typically from twelve to eighteen months have passed. Technical assistance donors have their own devices—enabling legislation passed, conditions precedent met, etc.—which are equally time consuming.

The staffing problem is just as problematic. To save on apparent costs, development agencies may 'double up' two job descriptions for a single position, e.g., hydrogeologist/driller. A doubled-up position is at least twice as hard to fill adequately; if suitable candidates of one type are hard to find, getting people who are equally qualified in two fields becomes nearly impossible.

The lag-time for recruiting capable senior staff is usually one to two years: externally, because of prior commitments and contracts, internally, because if the person is capable the present employer (usually another public agency) will block the transfer. A field team must usually operate with one or two key positions unfilled because of late recruitment, leave, overseas training for participants, etc. The implication is that part of the official scope of work will not get accomplished. The more detailed the initial project phasing, the harder one must work to disguise a predictable situation. This is one illustration of the tendency of modern managerial practice to create "Catch 22" situations; no matter what field staff do they will seem to be failing to meet requirements. The safe way out for field staff is to "work to rule." Indeed many of the negative features itemized in chapter one in regard to LDC rural administration might be interpreted in this light. Because the thrust of modern accountancy is all downwards, without counterbalancing devices to register protest upwards, it becomes hard to retain capable managers who can make things happen despite the odds.

By specifying program management as primarily a matter of "implementation," we implicitly reinforce the "blueprint" model of policy application. But we could conceive of program management in very different terms, as consisting of the *gradual creation* of effective organizational units to meet genuine human needs. The manager's goal could be seen as achieving a "virtuous decision-path," that sequence of decisions which lead to the realization of greater capabilities within the field team. One senses vaguely that many other factors which we have not reviewed might be significant: a sense of organizational purpose, the confidence individuals have that they can solve particular types of problems, a willingness to sacrifice for the common good, etc. It is indicative of the state of the art that we know very little about these human aspects of rural development which underlie organizational effectiveness.

Motivation

In my own experience a significant aspect of program leadership is building up an invisible "tolerance margin" within the field team. Extra commitment and good will must be accumulated within the group, so that in times of crisis individuals will contribute more than can be contractually expected. The traditional approach to motivation, with its stress on direct (price-governed) remuneration and a contractual definition of roles, is ill-suited to the fluctuating demands of rural development field situations. A wise leader uses additional means to create a reserve capacity, essentially reciprocal in nature, the ability to call upon individuals for extra effort which they know will be taken into account at some future time even though the precise remuneration remains unstated. The group properties which widen this "tolerance margin" include the evolution of an internal ideology, peer group loyalty, confidence in the potential efficacy of group action, and the opportunity for individuals to achieve what they regard as being significant. Research suggests that the things which classical theory treats as motivators of performance mainly address negative situations, where

reciprocally-based cohesion in a group begins to break down (Myers 1964). The dysfunctional aspects of LDC rural administration are often the mailaise of demanding work situations which lack positive leadership and a sense of organizational momentum.

Ouichi and Price have pointed out that the most effective large-scale organizations--which they term Type Z in contrast to McGregor's Types X and Y--have reciprocally-based internal cohesion, more like the traditional clan than the idealized corporation (Ouichi and Price 1978, Ouchi 1980). The major advantage of reciprocal exchange within a group is its superiority in handling "open ended" situations, where the exact nature of compensation cannot yet be specified, the tasks are not fully known, and the time duration of effort uncertain. As long as the individual trusts that the leadership is aware of his or her accumulating "organizational credit," he or she will work hard, even under unusual demands. Perhaps the most important reward is the feeling that the organization is succeeding, and that the sacrifices made voluntarily by individuals are worthwhile and appreciated.

Dealing With Other Causes of Delay

Three likely reasons for program delays are: inability to recruit and train staff in time, delays in ordering equipment (often caused by difficulty in obtaining import permits, letters of credit, and overseas tenders), and pronounced lags in the completion of housing and plant. Each has an obvious impact on the timeliness of program activities, and each is quite common. A field manager should be ready with contingency plans. It is not unusual for the whole project to run its course and the buildings remain uncompleted.

In my experience the causes of construction delays include: (a) obligation to use donor's components, (b) incompatibilities between a donor's and the host country's standard specifications, (c) complicated procedures for obtaining a release of funds prior to awarding contracts, (d) shortages of basic supplies such as reinforcing rods or cement, and (e) the tendency of contractors to fudge on specifications--often because of shortages--so that a completed structure cannot be accepted but stands idle waiting modifications.

Realistically a field team should expect to work out of existing or temporary facilities during the first one to three years of its activities. If the program is under high pressure from the start, it is better to search out underutilized physical plant--perhaps a disused leprosarium, for example--which can be "bartered" unofficially against new construction within the administrative system. Of course, the danger of barter arrangements is that they will be personal to the heads of the respective agencies, leading to unfortunate consequences if either party gets transferred, or if the donor's auditors arrive.

Administrative barter is often also necessary to obtain staff and vehicles, as program targets usually assume a short start-up time which all but obligates the field manager to tap staff and equipment already in the pipeline for other projects. (American auditors are a special problem in this regard, since they assume a delivery system where everything arrives on time.) Within an LDC everybody understands that what is on paper and what occurs will differ; as a consequence a wise manager must patrol his perimeter at all times and it is useful to know of other resources to suggest if one's own get commandeered.

E. Program Contexts

If many of the problems of implementing rural development programs and projects tend to be common, the *content* of these activities is not. It varies enormously, making "rural development" an umbrella label for a wide variety of enterprises.

Nothing affects the design and content of a rural development program more than its setting or context; yet there is no systematic classification of the different contexts within which rural development is promoted. As a first step to meet this need I suggest the following types:

1) Pastoral and ranching areas
2) Irrigation farming
3) Large-farm or estate areas
4) Marginal lands/hill farming
5) Intensive peasant smallholdings
6) Organized settlement/frontier areas
7) Labor reserves
8) Tenancy & refugee farming
9) Peri-urban squatters

Several of these are discussed in Hunter (1978:134-49) and in chapter six. They will be noted only briefly at this point.

1) *Pastoral and ranching areas* pose problems because of the low density of human populations, the breakdown of communal tenure, the prevalence (actual or potential) of stock theft, resistance to education, and the seasonal movement of people (under semi-nomadism). (We will review these difficulties in detail in chapter eight). Where pastoralists exist within a larger, mixed economy their distinctive requirements are likely to be at variance with the general pattern of administration.

2) *Irrigation farming* differs from other types in the greater capital intensity needed, the large influence of engineering design on social welfare, heavy reliance on only one or two major crops, associated health risks, and the likelihood of absentee landlordism and dependent tenant attitudes. Tenant farmers may live in large villages

which introduce additional welfare and administrative problems.

3) *Large-farm or estate areas* in the tropics are associated with foreign capital and export crops such as rubber or tea. The indigenous population participates as workers rather than owners, and lives in quarters (usually grouped into villages) provided by the management. Administrative issues are quasi-urban in nature, having to do with wage laws, labor relations, electrification, and safeguarding the quality of social services. Under an "indigenization" policy the state may acquire ownership, and with it the need to train local managers and to encourage worker participation. Because of the proletarian character of estate life, districts which contain both estates and traditional settlements often have difficulty coordinating the needs of the two.

4) *Marginal and hill farming* can be found in pockets of semi-arid or hill country throughout much of Africa and Asia (cf. also northeastern Brazil). Here annual rainfall dependent crops predominate. Subsistence production based on the sale of seasonal surpluses yields insufficient cash flow to support differentiated commercial services or marketing cooperatives. Because of high risks and the low volume of sales, if single channel, bureaucratized marketing is imposed (as it was in Tanzania after independence) it will prove a disaster. Small stock may contribute significantly to household welfare while accentuating the deterioration of communal lands.

In much of Africa the official cash crop for such areas is cotton, which is labor intensive, competes directly with food crops (with which it shares common pests, thereby guaranteeing diminished returns), and requires a high standard of management and substantial cash investment (for spraying). Growing cotton may be in the national interest, but it is not under typical conditions in the community's or farmers' interest. There are Asian crops suited to drier climates and several underexploited indigenous species, but such possibilities are usually passed over by official research programs which concentrate instead on conventional cereal and industrial crops. Consequently in the more isolated areas peasants derive livelihood from their own efforts, sometimes focused on poaching, charcoal burning, smuggling, or cannabis growing. Alienation of the limited better land to outsiders is also a frequent complaint. See Reddy (1977). Official programs for these areas lack an income generator, and tend towards welfare and regulation: famine relief, tax collection, elimination of illegal trade, and perhaps protection of tribal minorities. Illustrative cases include Jellicoe (1978), Martin (1973), Hackenberg (1972), and Kunstadter et al. (1978). Where the indigenous populations were originally hunters and gatherers the transition into settled farming is particularly difficult. Shelton (1977), Berndt (1978) and Turnbull (1972).

Saxena (1977) discusses the planning of "backward area development." Analytically, one can distinguish several interacting processes which eventuate in what might be termed the "backwards district syndrome." These are (a) an initially isolated situation, (b) reliance on migrant labor for cash earning, (c) subsistence based livelihood, (d) insufficient cash flow to yield a return on commercial investment, (e) insufficient tax base to support public services, (f) apparently hopeless local opportunities for returning migrants, (g) provision of education which leads to accentuated out-migration, (h) the local economy stagnates, (i) the area acquires a reputation for being a place where "things always fail," and (j) the administration accomodates by making it a "punishment post" for civil servants too corrupt, lazy, or incompetent to continue elsewhere. These features become self-perpetuating over time. They arise from the shared perceptions and decisions of hundreds of independent actors and become exceedingly difficult to counteract.

5) *Intensive peasant farming* emerges where better soil and rainfall permit perennial crops such as tea, coffee, bananas, manioc, or dairying. Cash income is as a consequence sufficient to support a dense population and improved services, and farmers are often organized into marketing cooperatives. Where there are volcanically derived soils and farmers plant multiple crops, even a small plot of two to three hectares can support a family. The technical possibilities include agro-forestry, fish farming, and a large array of horticultural crops. (Until the green revolution measures of the early 1970s, Western agronomists paid scant attention to the potential of hoe farming in the tropics and generally categorized sloping land [the *best* farmland in much of the tropics] as unsuitable for arable farming.)

With rising human populations the farming system undergoes what Geertz termed "involution." The crop mix shifts towards labor intensive high yield crops such as irrigated rice. Sometimes involution is accompanied by land fragmentation and disguised underemployment. Nevertheless peasant smallholder systems with perennial and root crops are astonishingly resilient, and can support the equivalent of urban densities within a rural settlement pattern. The policy dilemma arises because the successive stages of involution are irreversible (at least in the short run). In the final stages there may be no monocrop, commercial alternative capable of supporting an equivalent human population on the same land—witness experience in Kenya and in northeastern Brazil, where irrigation schemes have been unable to absorb all the people already earning livelihoods from the same area.

For smallholder peasant farmers, it seems that multiproduct marketing cooperatives coupled with early land reform and the introduction of new perennial crops are a more effective strategy than either mechanized Western farming or socialist cooperative farming. Country case studies from the bibliography include for Egypt, Harik (1974), O'Brian (1966), Fathy (1973), Richards (1980), and Waterbury (1979); for the Philippines, Foley (1976),

Hayami et al. (1978), Kikuchi and Hayami (1980a, 1980b), Krinks (1974), and Madigan (1968); and for Taiwan, Stavis (1974), Fei et al. (1980), and Fuchs and Street (1980). More briefly, there are case studies in Ghai et al. (1979), Leys (1974) and Heyer et al. (1976) on Kenya, and Ohkawa et al. (1970) on Japan.

These are only a small part of a large and rapidly growing literature on peasantries around the world. Good introductory accounts are provided by Migdal (1974), Lipton (1977), Reining and Lenkerd (1980), and the articles collected in Shanin (1971). Much attention has been given to clientalism and forms of exploitation. See Scott (1973, 1976), Jacobsen (1973), Mutiso (1975), Jacobson (1973), Dow (1973), Dalton (1974), Haas (1978), and Seligson and Salazaar (1979). For specific types of peasantries see Pearse (1975) on Latin America, Avila (1969) on Mexico, Forman (1975) on Brazil, Seligson (1980) on Costa Rica, Osterud (1978) on Scandinavia, Nair (1979) and Kaufmann et al. (1975) on India, Geertz (1963) and Poffenberg (1980) on Indonesia, Calavan (1977), Hanks (1972), Potter (1976), and Van Roy (1971) on Thailand, Popkin (1979) and Cummings (1978) on Vietnam, Parish and Whyte (1978) on China, and Ward (1972), Belshaw (1964), Mead (1956) and Kiste (1974) on Oceania. The change from subsistence to commercial production is the key transition which may leave some groups permanently disadvantaged, an outcome which the sharing of resources under "involution" temporarily averts.

6) *Frontier areas* open to new settlement are both an immediate opportunity and a potential source of future problems. The frontier situation has been a salient and continuing feature in tropical lands, particularly the savannah belt of Africa and around the fringe of the Amazonian rainforest in Latin America. The "free" resources were, of course, already being used by hunting and gathering groups who were rapidly dispossessed. Despite the short-run abundance of land on a frontier, such areas generate a whole family of subsequent administrative problems. Often there is a boom-and-bust cycle because the natural resources are harvested before farmers have achieved sustained yields.

The framework colonists erect to protect land speculation—a source of much initial capital on a frontier—discourages the attainment of sustained yields. The riskiness of farming is not yet known and the technology often rudimentary. Bank loans made for speculative purposes become the means for dispossessing immigrants, but land still appears plentiful, and settlers do not organize to defend their interests. The social composition of frontier areas is often mixed, with groups whose traditions not only conflict but may also be at odds with the national pattern. Labor rather than land is initially the limiting factor. Over the longer run the frontier can yield a bitter harvest: soils become rapidly depleted in the tropics, and once population intensifies rural families discover they have little legal claim to lands they helped colonize. Almost by definition, a frontier lacks internally evolved social mechanisms to protect the rights of the poor and the weak.

Where governments intervene one finds officially sponsored settlement schemes, which briefly came into fashion in the mid-1960s (see Chambers 1969, Dozier 1969, Farmer 1974, Palmer 1974, Reining 1966, Roder 1965 and Schickle 1968). The more recent Latin American experience is reviewed in Nelson (1973, 1977) and Hiraoka (1980).

It is important to distinguish resettlement necessitated by crises or large development projects (see Colson 1971, Cochrane 1970, Kiste 1974, and Salzman 1980) from land transfer projects which usually involve only intensification of land use coupled with changed ownership. Land transfer programs are well documented: for Kenya see Harbeson (1973) and Leo (1978); for Israel, Kushner (1973), Shapiro (1971), Weingrod (1966), and Weintraub et al. (1969); for the US, Holley (1975); and for Algeria, Blair (1970), Nellis (1977), and Sutton (1977). Because land is not yet scarce, frontier areas offer attractive prospects for livestock development provided that the marketing, forage, disease control, and environmental degradation problems can be overcome.

As the failure of many land settlement schemes attests, government intervention to regularize the situation can become very expensive. On a frontier everything has to be solved at once: infrastructure, social services, land survey, crop development, marketing, and credit. In those parts of the world where an indigenous frontier still exists—i.e., the eastern side of the Andes, the borderlands of the Zaire rainforest, and parts of southeast Asia—a four component strategy would seem advisable: (a) agreement on an easily verified land tenure system linked to overall land-use planning, (b) intensive applied research to find sustained yield farming systems and successful cash crops, (c) a "site and services" approach to protect the common good but leave actual settlement to private initiative, and (d) prior development of institutional prototypes if higher cost programs such as irrigation are anticipated.

7) *Labor reserve* areas look much like peasant farming, but should be distinguished analytically because of the large invisible impact which out-migration has on the local economy. By "labor reserve" we mean rural communities that depend on remitted earnings for cash income. When an area enters the national economy before its farming has been monetized—and particularly if it is remote, with high transport costs (see Pease, 1976)—people will be forced into out-migration to meet their cash needs. Over time this can become the predominant pattern to such an extent that the industrial sector externalizes welfare costs back on sending communities. The rural sector must then support the aged, the sick, the incapacitated, and those without sufficient education to secure salaried employment. In this event, the

"backwards district" syndrome leads to a dual economy whose functional interdependence is disguised by extreme differences in life-style. For sending communities, the economic consequences can be very serious. The younger men at the most innovative stage of their careers are absent; taxes on their earnings accrue to the urban and not the rural areas; absentee owners complicate land tenure and predispose those left behind to avoid permanent improvements; and the savings migrants accumulate will be spent on household rather than farm modernization. Perhaps most significant of all, to the returning migrant the home community appears backwards, stagnant, and economically unattractive.

8) There are particular political problems when farmers are *tenants* or *refugees*. The root difficulty is that the rural populations do not have secure rights to the land they use and hence to their livelihood. Many rural development measures which presume a long-run interest in household and farm modernization (fencing, improved farm structures, etc.) do not make sense if clients have only temporary use rights. Traditional obligations often protected the rights of tenants, as in the instance of the Harijan laborers described by Critchfield in India (1973). Once the production system becomes monetized, tenants who have worked the land for generations may suddenly find themselves dispossessed. A major focus of rural development in such settings is land reform, and the creation of a viable long-run base for community livelihood.

9) Finally, there are zones occupied by *peri-urban squatters* who live in densely settled communities near rapidly growing cities. Tropical conditions permit multiple cropping and perennial crops which can sustain families on extremely small plots. In many Latin American countries we find a substantial proportion of the supposedly "rural" population are actually barrio dwellers in mushrooming, unofficial settlements just outside the major cities. Most sources deal with these as an aspect of urbanization. From the bibliography see Buick (1975), Berry (1973), Connell et al. (1977), Eckstein (1977), Hake (1977), Kern (1973), Lloyd (1979), McGee (1973), Mangin (1970), Miller (1971), Perlman (1976), Roberts (1979), Rodwin (1969), Southall (1973), and Whiteford (1976).

Civil servants tend to characterize such settlements as slums, associating them with crime, disease, social problems, and illegal squatting. In fact, as Berger (1976), Hake, and many others point out, such communities often have internal social cohesion despite their lack of official status. Although technically they lack title to the land, people may have lived on a site for decades. Single parent households—often headed by women—are common. People maintain themselves by a combination of nonformal pursuits: petty trading, casual work, gardening, and various other services which depend on the proximity of the city. Neither the rural farm service network nor the typical urban pattern is suited to the special needs of such communities, where people suffer from severe nutritional, social, and economic problems as well as from deliberate official neglect. People are reluctant to admit that under free market, capitalistic development with a rapidly growing population there will be a large and growing peri-urban population.

Conclusion

We lack procedures for relating rural development programs to the matrix of social, economic, and ecological characteristics in their environment. The features itemized above are major ones, sufficiently important to require different programs. Yet the literature on rural development has almost no discussion of the patterning of programs, no awareness that certain problem situations require different treatment from others. A major goal of this book is to stimulate the emergence of *programmatic* experience above the level of the individual project, making it apparent that the design of rural development is a larger topic than the design of development projects.

CHAPTER THREE

Information for Design, Management and Evaluation

The Categories of Information Demand

Initial Program/Project Appraisal

Program/Project Development Data

Project/Program Evaluation

An organization's need for information derives from its activities. The rational question is always: what is going to be done with data once they are available.

Enormous effort can be wasted on generalized data accumulation, because nobody has conceptualized clearly what kinds of "facts" the field organization genuinely needs. A rural development program gets surrounded by a cocoon of information which defines its progress and documents its demise. The cocoon is begun by planners, but mostly it is extruded from within, consuming much of the field team's time and energy. For that reason it is important to examine the problem of information in some detail.

A. The Categories of Information Demand

In rural development administration we can distinguish three broad categories of information use that roughly parallel the choice, development, and termination of a project. Data will be required for planning, for monitoring, and for learning.

It is rarely feasible (or desirable) to apply a unified scheme for managing program information flows. The data typically originate from four to seven different sources, not necessarily in the same agency and usually prepared by different actors. The heaviest information need occurs at the planning stage, to guide project selection and assist program design. Then, once a unit is operational its own staff will generate performance data from internal management information systems: the in-house flow of routine reports, budgetary reviews, planning documents, and internal evaluations. Another type of review is conducted by auditors—internal and external—who these days amplify their power by insisting on the right to conduct program as well as financial audits (our "blueprint" assumptions once again!). Sometimes parallel documentation must also be maintained, e.g. baseline surveys at the start and subsequent monitoring of control communities. Then we have full-dress external evaluations conducted at the behest of donors, the planning ministry, or the Prime Minister's Office. Finally, there may be a terminal evaluation involving outside researchers or a consultancy firm. All these activities have associated technologies, so that providing rural development information has become a major growth industry.

The major categories of information processing can be represented schematically as follows:

Ex-ante appraisal:	In-stream management	Ex-post evaluation:
Prospective ►◄	Continuous ► ◄	Retrospective
Uses project appraisal technology	Uses internal management information	Uses interviews, social surveys & project data
Perhaps baseline survey & experimental design	Plus mid-term & end-of-project evaluations	Perhaps follow-up study of impact, review of baseline

Evaluation

The biggest single source of information demand is for "evaluation," which is defined for our purposes here as the formal assessment of project (or program) prospects, impact, and accomplishments. If one thinks of the planning cycle (information-decision-action-review) the last stage feeds back into the first; hence in any large project extending over several years "evaluation" ceases to be only a terminal stage activity. Most projects have mid-term evaluations which are the occasion for project modification, and from the very beginning baseline surveys must anticipate what types of information will be needed in the terminal evaluation of project impact. The best text on this topic, Franklin and Thrasher (1976) stresses that the goal these days is to make evaluation a continuous function of management.

Nevertheless, up to the mid-1970s it was customary to treat the start-up assessment of project prospects as a separate topic, termed "project appraisal." Many authors continue to distinguish "appraisal" from "evaluation," the former including all ex-ante information which weighs future prospects, and the latter producing ex-post information about actual performance. The reason for this distinction is that the two technologies are dissimilar. Ex-ante appraisal has come to be predominantly econometric in focus, looking at the allocation of capital in relation to projected costs and benefits, while ex-post analysis uses survey technology to measure a variety of intended and unintended impacts.

B. Initial Program/Project Appraisal

In the mid-1960s appraisal technology was in its infancy. The issues considered at that time when launching a new program spanned the entire range of relevant subsystems, and required informed judgment. There was a proliferation of checklists and rating schemes, many of them still useful today—cf. Adams and Haven's (1966) outline for their Columbian study, or Barbour's concept of "facility profiles" (1966).

Today the aim of making investments has replaced developing programs. The proposer of any new project is expected to conform to a demanding appraisal technology. This comes in two versions, one for bankers (financial analysis) and the other for planners (economic benefit/cost analysis). The standard introductory source on the former is Gittinger (1972) and on the latter, Little and Mirrlees (1974). Students tend to confuse the two—understandably, as even Gittinger titles his book on financial analysis the *Economic Analysis of Agricultural Projects*.

In *financial* analysis, we take the banker's viewpoint and ask whether an investment is commercially sound. But if one takes the viewpoint of a nation's planning ministry it will be equally important to know whether some factors may be undervalued (e.g., the foreign exchange used up to order parts) or scarce (the commitment of one third of the nation's irrigation engineers to a single project). In the latter case the salary costs understate the economic importance of these specialties to the nation as a

whole. Their *economic* cost can be estimated by examining opportunity costs, defined as the value of the alternative production forgone by using them on this project.

The *social* costs and returns from a given venture will often differ from the economic and financial costs and returns. A gold-mining company which externalizes the environmental damage of tearing up a river system will still appear an attractive investment to a bank interested mainly in recovering its loan. Such dilemmas are common in an LDC. Consequently "economic appraisal" usually requires adjusting financial costs to reflect the interests of the whole country, i.e., the application of "shadow pricing."

The Information Problems of Project Appraisal

Such considerations constitute the standard fare of courses in project appraisal, which has blossomed into possibly the largest single branch of the rural development literature. Technical assistance agencies routinely require project appraisal before granting funds, and the procedures are sufficiently demanding that a neophyte must have access to a manual in preparing project submissions.* The two manuals by the United Nations (1958) and UNIDO (1972) are supplemented by numerous recent treatments: Little and Scott (1976), Merrett and Sykes (1973), Roemer (1975), Shaner (1979), Squire and Van der Tak (1975), and the Ministry of Overseas Development (1979). A more theoretical study of the effect of uncertainty on appraisal is by Reutlinger (1970). For case studies emphasizing agriculture see King (1967), Green (1974) on Ethiopian farming systems, Linn (1977) on the Ivory Coast, Scott, MacArthur and Newbury (1976), and the World Bank's own Economic Development Institute cases (1979). Specific applications to agriculture include Bergmann (1973) on irrigation, Brown (1980) on how to move from farm budgets to project analysis, Gittinger (1972), Openshaw (1980) and FAO (1974) on forestry projects, and Beenhakker (1979) on rural roads. Simpson provides a brief analysis of traditional Papago pastoralism (1970) and Peterson and Seo (1975) show how to incorporate decision-tree analysis. The Educational Testing Service (1974) gives a manual for the appraisal of nonformal education projects. More generally, Livingstone and Gunn (1974) remains the standard source on accounting for nonmarket projects, and Goodman and Love (1980) propose an approach integrating planning with management.

If one defines madness as rational premises carried to illogical extremes, then project appraisal lies pretty deep in the twilight zone where procedural manipulation replaces sound judgement. Any field manager can itemize the technology's shortcomings, but it has become so basic to "blueprint" planning that no amount of reasoning is likely to stem its onward elaboration. For the record let me list the reasons why the technology proves so troublesome in an LDC setting:

1) It uses common terms in unfamiliar ways, and proves inherently confusing to LDC officials.
2) The computations, while not mathematically complex, are very time consuming if carried out by hand, and provide sufficient room for error so that in an LDC the manager must check them all personally before drafting the project submission.
3) Technical coefficients and monetary estimates are required which are not available in a traditional economy. The junior staff sent out to gather such data will be strongly tempted to fabricate figures.
4) Many social and political benefits are incommensurate, leaving the practitioner a wide range in assigning values to manipulate the procedural outcome.
5) Anticipated benefits in an LDC administrative system operating far below the threshold for effective performance will be wildly out of line with likely results, but for reasons of face this cannot be admitted.
6) Nobody will want to admit the benefit stream will lag from three to five years behind the cost stream because of initial difficulties in shaking the problems out of the production cycle. More often than not, the time phasing shown in the official documents is hopelessly unrealistic.
7) The comprehensiveness of the analytical coverage is misleading. Many factors do not receive *systematic* scrutiny in their own right. But because they are listed in the project submission an impression is conveyed that they have been adequately weighed.
8) The extra time that must be spent getting data occurs at the very stage of project development when program design decisions are being finalized.
9) The estimated life of capital equipment has a large influence on results, but actual working life is often considerably shorter than officials will admit when applying for funds.

The poorer the country, the more valid are these objections. In technologically backward countries the appraisal technology fosters bad data, unrealistic time horizons, and the anticipation of benefits which may not

*The procedural bias towards over-weighting economic factors in project appraisal has been noticed by social scientists. Attempts to broaden the methodology to include the quality of life, poverty, and sociological factors are contained in Drewnowski (1974), Kakwani (1979), Tyler (1979), Cochrane (1979), and Eichner and Brecher (1979).

occur. I suggest that any technology which uses the least reliable parameters as its key criteria to guide decisions ought to be abandoned. In LDC's the damage is compounded because appraisal estimates are linked to loan financing, which all but guarantees delinquent payments and all the pressures these bring. But the most serious cost remains the diversion of managerial attention at the critical early phases of program and project design.

Information Essentials of Project Appraisal

What *should* a planning team pay attention to when investigating potential rural development projects and programs? A good starting point is to anticipate the data needed for program design, which includes answers to these questions:

1) What should be done?
2) Where should units be located?
3) Who are the target groups?
4) What technology will be employed?
5) Who will operate the program?
6) How will operations be financed?
7) What support linkages will be required?
8) When should activities take place?
9) To whom will field units be accountable?
10) Where will the benefits accrue?

Each question implies subsidiary and subsequent questions, but one needs to guard against plunging deeply into one set of issues at the neglect of the others.

When programs originate externally some of these questions will already be "givens," not subject to change without jeopardizing the initiative itself. It is the varying complexion of givens in the overall situation which renders program design an art and not a science. The procedures required in approaching other questions will change in order of importance and even in content, depending on one's "terms of reference" (or *a priori* boundary conditions). As a rule Americans tend to waste effort on a fussy delineation of the "correct" steps to follow, as if somehow information comes in packages that can be ordered to arrive on a set date. They also have a predilection to prefer processed information and quantified rating schedules, as if the exercise of discretion is too great a cosmic burden to bear ("unscientific"). The one safe rule is that in an LDC one acquires necessary information in strange ways and at unexpected times, perhaps over a glass of wine shared with the padre.

Project design is not applied research. An immediate issue is whether to *create* one's own data or to utilize the less systematic information already available in the environment. The questions to ask will cross-cut the entire decision space. Only on rare occasions will there be enough time to compile a systematic information base relevant to each topic. This is the main reason why formalized planning procedures prove so burdensome: by the time the data are acquired, processed, and evaluated the decisions are already made.

Intelligent Reconnaissance

A wiser approach is to rely heavily on what can be learned from reconnaissance visits, broadening one's social network on each occasion and searching out key informants at each level in the hierarchy. The systematic part comes in forcing oneself to ask the same questions of different informants—usually by means of a memorized checklist, much coffee, and a pocket notebook. One learns the journalist's trick of recording figures and dates on the spot, and retreating to the car to debrief oneself later into a taperecorder. It is often surprising how much empirical knowledge farmers possess, if one can overcome their suspicion why someone with education is asking questions of them (see Barker, Oguntoyinbo and Richards (1977). Robert Chambers at Sussex has been taking the lead in exploring techniques for the rapid reconnaissance of larger areas such as districts and provinces. It is entirely in keeping that the American response to this same need has been to focus on remote sensing devices such as ERTS imagery (National Academy of Sciences 1977). A more useful development is the inclusion of participatory research techniques within social science training (Werge 1978).

The Crux of the Matter: Program/Project Aims

The most critical issue is to determine the substantive focus of a program effort. What are the highest priority needs in a situation which might be met by a new program? The customary tactic among community development workers was to undertake a "needs identification analysis"—simply asking people what were their problems. The technique is easy enough to apply, but it tends to bias attention towards community welfare: more water, better roads, nearer clinics, and larger schools. An important additional fact to be determined by the outside analyst is whether there is enough cash flow within a community to generate employment or support further services.

In assessing rural development in Kenya we found that a checklist of existing public and commerical services available to the village was easy to administer, and it proved an indirect measure of the adequacy of cash flow. (See Heyer et al. 1971:41-43). If constructed with a built in time-marker ("Was this service available here at independence?") and obtained from a range of villages, such a checklist will document trends and the intra-district

range of services. But any systematic work of this kind must be introduced to villagers, and thus may generate demands that a particular village be included in the new program—a major problem we encountered in trying to select "pilot" areas within the Kenya Special Rural Development Programme (SRDP). Perhaps only researchers are naive enough to believe that questionnaire surveys are neutral instruments without implications for implementing the subsequent action program.

If income generation becomes the starting point, one will want to examine the existing cash and food crop activities in some detail. Do we aim to improve the return from existing crops, or do we introduce a new enterprise as an alternative? This question changes the frame of reference from that of the community to that of its major crop industries. A scheme for identifying the essential components in crop development is given in Table 3.1, but there are several others in the literature especially Mosher's *Getting Agriculture Moving*, Rondinelli and Ruddle (1978:83), and Kulp (1977:14-16).

To use the scheme, one follows the major cash and food crops separately through the production sequence from the allocation of factors of production right down to the distribution of profits. One looks to see which service institutions are involved in providing each component, and whether that component appears to be limiting productivity at the moment. The chain of components grows from the top downwards as the farming system evolves, first into commercial farming and then into technologically innovative production. The chain must be complete to a given point before investments in that component will show a response. While all the ingredients are necessary, a country may choose quite different forms of group organization as the "accelerator" to amplify the interaction of these components (Mosher 1966).

I have arranged the ingredients into a chain rather than a wheel (*à la* Mosher) to emphasize that a constraint at any one stage limits all subsequent activities in the sequence. Frequently in LDCs we see large investments in factors that are not limiting, and as a consequence have little effect on output.

The *directionality* within the sequence is also significant: one cannot move a community from a subsistence agriculture into innovative production in a single, massive transformation. Both Weitz (1971) and Kulp (1977:26-27) stress that in a given zone farmers must learn to produce for the market—moving from subsistence (selling only their surpluses) into commercial production—*before* they can profitably employ fertilizers, credit, and the other features of advanced agriculture. Credit is a particularly dangerous ingredient until farmers acquire substantial managerial skill. For that reason I place it at the end of the sequence. Ultimately, a crop's appeal will be determined by the incentives that remain for the farmer at the end of the chain, after all costs have been deducted.

TABLE 3.1
Essential Ingredients for Agricultural Development

I. Resources	1. Land, requisite soils 2. Water 3. Climate
II. Crop	4. Suitable varieties 5. Required technology 6. Control over pests & disease
III. Labor	7. Farm labor force 8. Minus claims of on-farm dependents (food, time) 9. Managerial skill

These ingredients combined yield on-farm subsistence production, and are the base of any farming system, traditional or modern.

IV. Demand	10. Size of marketable surplus on-farm 11. Off-farm demand 12. Monetized exchange
V. Transport	13. Transport facilities 14. Intermediary storage & marketing system

The addition of these factors leads to spontaneous capitalism, and will occur naturally in response to market forces provided that the communications network has been established.

VI. Research	15. System for developing new varieties, technologies, & recommendations
VII. Extension	16. Information contact to diffuse knowledge of innovations, extension system 17. Transfer of skills & management (training)
VIII. Inputs	18. System for producing inputs 19. Supply of inputs to the farm level 20. Specialized supporting services
IX. Finance	21. Crop purchasing organization 22. Credit
X. Incentives	23. Reduction in levels of risk 24. Profitability of crop 25. Social & administrative incentives

The addition of these ingredients transforms farming into a form of rural industry involving changing technology and specialized production. The transformation requires public investment and usually depends on public financing of at least the more specialized services.

This is a greatly compressed scheme. It requires judgment about the average adequacy of producer services for the community. The opinions needed can be obtained from four to five experienced farmers ("key informants" in social science jargon), preferably in a joint meeting where any disagreement can be elucidated. One does not require a questionnaire survey, which at a preliminary stage will greatly delay the acquisition of what is really quite simple information. If, however, one's commitment is to improve the industry rather than assist the community, a more differentiated model of producer services is required. (Table 3.2).

Theoretically, to weigh the relative attractiveness of a crop one must obtain the full matrix of data from Table 3.2 for *each* major food and cash crop a peasant farmer is growing. Those accustomed to the vast simplification which specialized monocropping brings will think this listing exaggerates, but it does not: an excellent example of real-life complexities one encounters is given in the flow diagram for one peasant household contained in Scrimshaw and Taylor's review of the world food situation (1980:86-87).

Micro-economics requires the quantification of inputs and outputs, so the application of economic analysis to peasant farming is not to be undertaken lightly, or for very many farmers at one time.* Economists typically simplify their analysis by adopting average coefficients and assuming only one dominant cash and one food crop. But the complexities suggested in Table 3.2 are real enough to the farmer; if it happens the cooperative halves the coffee payout because of various cesses and surcharges, it most certainly does affect how farmers view coffee as a crop. In general, once all the leakages are taken into account (crops stolen, inputs spoiled, product eaten by rats, amount consumed by a large family, etc. there will be very little left to show as a cash return for a season's labor. In both Kenya and Tanzania the communities where peasants depend upon subsistence production are cash starved, and cannot support even the available range of commercial and public services. Thus finding a reliable, high value income generator is the first step which must precede other desirable program emphases.

The Effect of Aims Upon Information Needs

Still another set of priorities emerges if the analyst takes as the frame of reference the needs of a larger spatial area (district, province, or zone). See Kulp (1977) and Belshaw (1977). One then requires for a start aggregate data on resource availabilities population densities, fallow period estimates for the cropping rotation, ecological zone delineations, demand projections for the major cash crops, etc. Such figures are notoriously hard to come by in an LDC. Either they are sheer guesses or else they must be aggregated upwards from varying data sources. Kulp (1977:34) gives as good a methodology as any, suggesting the "policy strategy" should:

1) define homogenous farming zones
2) analyze the best program for the *average* farm in that zone, including specification of "yield raisers" and "bottleneck-breakers"
3) standardize the program as a package for the whole area
4) "convince all suitable farmers to adopt the standard package"
5) saturate the target communities with an integrated approach, using all possible field staff, while avoiding political pressure to dilute efforts over too large an initial area
6) accelerate the program to new communities once the first phase succeeds.

What I suggest is that project components and sequencing (and consequently the data required initially for planning purposes) will differ, sometimes quite markedly, *depending upon the frame of reference assumed by the actors in a design situation.* We saw in the preceding chapter that there are at least seven alternatives in common use. Some of these have now developed "approach methodologies" which indicate how to identify program components and then to formulate a coordinated strategy. It does seem, though, that the current approaches neglect the dimension of *future opportunity*. By orienting policy makers towards existing data in each field, standard approaches incorporate a subtle, retrospective bias which inhibits exploration of radically new alternatives.

C. Program/Project Development Data

To decide which innovations to incorporate, which villages to concentrate on, which target groups to involve, and when these activities should occur in the annual calendar requires still more information. Getting it takes time and overlaps the start of implementation planning by a program's field staff.

Within implementation a large number of decisions arise which were not anticipated in project documents, but the management will have little inclination to undertake a further series of field surveys. Locational aspects are in any case often viewed by higher authorities as

*For a start see Jones (1977:78) and Upton (1975), then Cleave (1974, 1975), Collinson (1972), Haswell (1973) and Norman (1973, 1979). The African rural employment program at Michigan State University has generated several excellent papers, and there is also the classic collection of papers in Wharton (1969). For a criticism of the agricultural economists' models of decision making, see Gladwin in Barlett (1980).

TABLE 3.2
Factors Influencing Profitability

1. **Crop**
   1) Variety characteristics
   2) Disease problems
   3) Pests & associated risks
   4) Water & climate requirements
   5) Soil & nutrient requirements
   6) Capital required:
      a) working capital
      b) fixed assets

2. **Labor Force**
   7) Farmer's managerial skill (training/experience)
   8) Current information (extension contact)
   9) Labor force:
      a) on-farm labor
      b) paid labor
   10) Dependents:
      a) other crops
      b) other on-farm ventures
      c) off-farm ventures
      d) social obligations
   11) Alternatives:
      a) other crops
      b) other on-farm ventures
      c) off-farm ventures
      d) social obligations
   12) Security:
      a) for crop
      b) for persons
      c) likelihood of payment

3. **Technology**
   13) On-farm equipment & power
   14) Basic & applied research done
   15) Inputs being produced
      a) fertilizers
      b) seeds
      c) pesticides & herbicides
      d) spare parts & maintenance
   16) Input delivery system in place & operational
   17) Financing available:
      a) for crop & inputs
      b) insurance
      c) capital development

4. **Exchanged Product**
   18) Gross on-farm product
   19) On-farm storage & transport capacity
   20) Withdrawal for consumption & barter, linked to 10 & 11
   21) Spoilage/loss rate
   22) Product exchanged (at harvest & over season)

5. **Prices**
   23) Local market demand
   24) Distant demand
      a) within country
      b) external
   25) Transport connections already operational
   26) Perishability factor, existence of storage
   27) Transport cost/distance function
   28) Marketing system in operation
   29) Over-season variation in prices

6. **Profitability**
   30) Gross return
   31) Deducted advances, production costs
   32) Deducted taxes & cesses
   33) Net return to farmer
   34) Reinvested profits
   35) Net profit
   36) Social obligations
   37) Net profit for disposal

political matters outside the program's terms of reference. But some technical functions depend heavily on being correctly located—deep wells, meat processing plants, irrigation schemes, etc. If put in the wrong places they are bound to fail.

The Basic Data Needed

The additional data needed for program development decisions consist basically of four types:

1) description of the farming system(s), to delineate homogenous zones and guide selection of the most promising innovations
2) preparation of village profiles—leadership, needs, and resources—to consider in locating program components
3) compilation of socio-economic profiles within selected communities to determine target participants
4) documentation of the annual farming and socio-political calendar, to indicate when different activities should occur.

If the sponsor insists on evaluation based on experimental design, the field team will also need to begin organizing "benchmark" surveys, following a sampling plan and including control communities. In the past, benchmark surveys were sometimes also expected to generate the information base for program design, but it soon became apparent that data analysis was rarely completed in time to serve this purpose.

Where multi-subject, socio-economic surveys have been used, the aim was generally to provide the raw data for categories two and three above. We really do not yet have appropriate methods for evaluating village leadership, resources, and needs—see Adams and Havens (1966). Nor do we have the means to select accurately among target groups, families, and individuals in deciding who should participate. Adoption research in rural sociology does suggest that unless client selection is controlled, the population reached will be the same households already using services and deriving whatever benefits they confer—see Chambers (1980). Table 3.3 itemizes factors at the village and farm levels which may be relevant at this stage of program planning. In gathering field data it is important to distinguish clearly whether a given factor varies at the community or at the individual farm level. Sometimes apparent "farm" difficulties should be seen instead as common problems affecting the whole community.

There is an evolving methodology for testing the congruence of proposed technical innovations with the constraints of existing farming systems. Now called the "farming systems approach," this is what field advisors have been roughly utilizing for decades. The reason is simple: in peasant farming many of the constraints that determine how people react to new opportunities will be derived from their present land-use systems. The more obvious factors to be checked can be derived from Tables 3.2, 3.3, and 3.4 and may include:

1) Land requirements in terms of soil characteristics, micro-climate, and potential for combination with other crops in the same plot.
2) Disease susceptibility, both in regard to on-farm interactions and possible changes under varying climate.
3) Competition for cash, over the season and at times of peak demand.
4) Competition for labor, over the season and at times of peak demand.
5) Competition for water, over the season and at times of peak demand.
6) Sensitivity of output to scheduling delays caused by any of above.
7) Inherent degree of riskiness including ease of being stolen, spoiled, or damaged if left unattended.
8) Nature of harvest and processing operations, on- and off-farm transport required.
9) Storage requirements, degree of spoilage or other losses.
10) Equipment required, complementarities with existing equipment.
11) Special skills required, complementarities to existing skills.
12) Complementarities and linkages to other on-farm enterprises.
13) Degree of off-farm specialized or emergency assistance required.
14) Dietary preferences, potential use as a staple in times of need.
15) Availability of in-community marketing channels.

The Intelligent Interpretation of the Data

Any one of these factors can be sufficiently important in a particular context to cause rejection of a proposed innovation. The criterion customarily used for evaluating agronomic results "yield/hectare" does *not* measure many of the features of greatest concern to a peasant farmer. A peasant farmer considers yield after being satisfied that the more vital considerations such as risk, labour demand, and competition for ready cash have been met. What is rational from the standpoint of a single criterion, such as yield per acre, or even profitability, may

TABLE 3.3
Socio-Economic Variables

Community-level Variables

1) Existing services, public & commercial, rate of growth
2) Size & characteristics of main service center
3) Settlement pattern: village vs. isolated homesteads
4) Degree of out-migration, any backwash effects?
5) Degree of cash-flow within the community systems
6) Input delivery systems which are in place & working
7) Adequacy of communications: buses, postal services, etc.
8) Nature & strength of leadership: traditional, egalitarian, bureaucratic; popular vs. unpopular; local vs. external
9) Degree of communal cooperation: survival of work groups or traditional sharing? Road repairs done communally? etc.
10) Nature of communal celebrations, degree participation
11) Past project performance size & degree of success
12) Degree of alienation of different groups
13) Reward distribution in the community: how controlled, nature of distribution
14) Evidence of special attention or assistance from higher levels in the hierarchy
15) Degree of factionalism in the community, conflict
16) Degree that women participate in community affairs
17) Ethnic homo-heterogeneity
18) Wealth distribution
19) Demographic characteristics
20) Attitudinal & prestige systems
21) General level of security
22) Administrative staff characteristics, degree rotation, corruption

Farm-level Variables

1) On-farm resource availabilities: size of farm, altitudinal zone
2) Quality of land & specific soil characteristics: degree slope erosion, catenary position, types
3) Farm water supply: distance, reliability, irrigation prospects
4) Farm fuel supply: distance, reliability
5) Transport situation & remoteness
6) Micro-climatic variation on-farm & general climatic pattern
7) Mix of enterprises being grown, size & requirements of each
8) Existence of livestock enterprises, degree of integration
9) Quality of husbandry evidenced on major enterprises
10) Degree of risk for enterprises
11) Innovativeness of the farmer
12) Degree of farm unfication: physical, operational & financial
13) Monetization of farming practices: (% sold, use purchased inputs, etc.)
14) On-farm investments: equipment, structures, fences, irrigation, & housing
15) Family characteristics: size, age & sex composition, no. spouses
16) Family welfare load: aged, infirm, alcoholics, no. young children
17) Family type (single parent household, stage in family development cycle, etc.)
18) Education & experience of farmer and spouse(s)
19) Degree of extension contact to farm
20) Participation in community organizations & use of services
21) Degree of media contact (radio, etc.)
22) Farmer's level of knowledge
23) Farmer's income level (estimated)
24) Expenditure pattern (farming vs. household vs. consumption

TABLE 3.4
Technology Assessment Checklist

1. Managerial competence required:
   a) of workers, b) managers, c) service organizations
2. Capital investment required:
   a) by operators, b) by service organizations
3. Labor requirements:
   a) stable or fluctuating? b) timing critical or flexible?
   c) low, medium, or high energy input? d) competition with other needs?
4. Nature of energy requirements:
   a) local, national, foreign? b) reliability of supply?
5. Site specificity:
   a) requires precise siting? b) variable risks by locale?
6. Self-sufficiency (up-stream linkages):
   a) requires continuing support? emergency service? has shared needs?
   b) can be maintained within locale? within nation? parts available?
   c) requires changes in other aspects of local system? Specify.
7. Tolerances:
   a) what standards assumed re: electricity & fuel supplies?
   b) warns of impending trouble in advance?
   c) requires high quality repairs? repairs availabe?
   d) needs grasp of sophisticated electronics/chemistry?
8. Output requirements (down-stream linkages):
   a) benefits depend on downstream demand? to what extent? competitors?
   b) benefits linked to adequacy of downstream services (storage, etc.)?
   c) externalities: any downstream needs shared with other users?
   d) is output quality likely to vary? Will this affect demand?
9. Levels of risk:
   a) physical dangers if improperly used? b) risks of capital loss? c) risk of failure of output?
   d) depends on risky suppliers, parts? e) assumptions made about environment?
   f) degree of novelty in locale?
10. Iterative impacts:
   a) direct on-site impacts b) displacement of other technologies? c) generalized ecological impacts
   d) socio-political impacts e) economic impacts f) aggregate energy impact if widely adopted
   g) up-stream benefits & costs h) downstream benefits & costs

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be quite irrational in a context subject to so many other varying but critical considerations.*

*Sources which deal with farm level decision-making include Gladwin (1979), Schluter and Mount (1976), Ortiz (1972), Roumasset et al. (1979), and Dillon (1978). In general these agree that the risk element is of critical importance. See also papers in Wharton (1969) and Myren (1964), and especially Barlett (1980) for anthropological viewpoints on agricultural decision-making.

Classifying Types of Farms

The main operational difficulty is that from a distance we cannot predict which considerations will predominate, and it would be impossible to document all dimensions for all settings where interventions are proposed. The obvious answer is to consolidate information by farming types, so that reliable guidelines can be built for fairly large categories of farmers in a particular district (e.g., what has been termed "farming domains"). Initially, the categorization would be static, based on major descriptive types identified by diagnostic field investigation. Later

the aim would be to relate individual types to evolutionary sequences based on a knowledge of underlying dynamics. Good introductions include McDowell and Hildebrand (1979), Harwood (1979) and Norman (1979).*

In practice, authors base their identification of farming systems on a number of features which overlap. So far, I have come across at least nine potential bases for system categorization:

1) *Factor proportions:* land-, capital-, labor-, or management-saving.
2) *Scale of operations:* smallholders, family farms, state farms/agri-business.
3) *Degree of commercialization:* subsistence, commercial, specialized.
4) *Dominant cash crop:* tobacco, coffee, tea, cotton, beef, etc.
5) *Predominamt staple:* rice, maize, root crops, etc.
6) *Ecological zone:* highland, lowland, moist tropics, semi-arid, etc.
7) *Farm technology:* rainfed, irrigation, mixed farming, ranching.
8) *Managerial mode:* owner operated, agribusiness, estates, tenant.
9) *Legal status:* tenancy, feudal, freehold, leasehold, rental.

These categories are usually combined to yield an astonishing array of permutations, and they do not exhaust the possibilities (e.g., a distinction based on levels of risk might be quite useful). The trick lies in deciding *which* feature to choose as the basis of one's first approximation, since any single category can only incorporate a few dimensions. Not surprisingly, one finds that disciplinary orientations tend to dictate the type of classification of farming systems that results.

Reporting and Management Information

A distinctive shift occurs when a program reaches the stage of generating internal data for management review (the management-information-system, or MIS). All sources agree that the routine reporting system should be used in as many ways as possible, as reporting is a major drain of a field team's time. In the Masai project we designed a single page report which each technician completed monthly. This included a line item for each day's major activity, location, night away (for per diem claims), account of major problems experienced, the three priority tasks for the coming month, and a record by week of advance commitments. I am embarrassed to admit this impressive device, which consumed hundreds of hours of staff time, was to my knowledge never used. The one time when a query arose, USAID refused to accept the technician's signed report and wanted it independently verified (nine months later). Monthly reports then are the sort of thing supervisors want for their files but seldom use.

My own opinion is that the quarterly report covers a more suitable reporting period, long enough to show progress but recent enough to be documented in detail. a quarter is also appropriate for phasing annual work plan targets. But many LDCs still emphasize the monthly report, going back to the days of the colonial officer (and still employing some of the same headings). What should be avoided is the submission of overlapping reports to different agencies.

The annual reporting cycle presents several complications. Retrospective reporting follows a different year from prospective planning (and planning for the new year must begin well before the old is complete). USAID starts its year in October, the British and UN agencies in July, and some LDCs are old fashioned enough to still begin in January. The agricultural season probably fits none of these, and in the tropics with a long dry spell the disjuncture between seasons is significant. For implementation planning, the logical time to start is from the arrival of funds, yielding a ten month year because they will usually be late. In practice one deals with several calendars all going on at once: one for claiming great achievements (Jan.-Dec.), one for financial accounting (July-June), one for financial requests (March-Feb.), and one for implementation (Sept.-May). Since the financial year often closes within the crop season, various quasi-legal devices will be relied on to show continuing funds as "expended" on the books.

Implementation Planning Techniques

There are yet other methods for time-budget planning (PERT, CPM, Bar charts, etc.) which field staff may be ordered to employ for scheduling implementation. Examples are reviewed in some detail by Kulp (1977:200-229), Delp (1977), and Chambers (1974). The methodology is essentially prospective and does not require fresh data, other than the manager's estimates of the typical duration for various events. This fact gets glossed over by the textbook writers; the charts look so impressive.

For example, I judge that by current African standards Kulp seriously underestimates the likely duration of activities in his Uganda poultry feed scheme. Durations lengthen dramatically as the level of mismanagement in an economy rises. These methods have only one advan-

*For descriptions of agricultural systems particularly with regard to Africa see McCloughlin (1970), Cleave (1974), Norman (1973), Thomas and Whittington (1969), Doyle (1974), Morgan (1978), and Ruthenberg (1976). Nigeria has been well described in regard to local systems; see in addition Berry (1975) and Lagemann (1977); for a model description from Tanzania, see Knight (1974).

tage in an LDC context: they force the manager to identify component activities clearly, and to elucidate the sequential linkages. But the assumption that time can be effectively commoditized is a serious weakness. It is not that local staff cannot estimate average times for events, but rather that realistic estimates are unacceptable to donor nations (and the country's own ministry of planning). One gets locked into an elaborate forecasting methodology whose "benefit" is completely negated by the necessity of employing econometric time instead of real time for all durational inputs.

On the whole, we lack plausible methodologies for implementation planning. The main reason is that under the economist's assumptions, implementation does not require planning. But in reality, as the constraints multiply one finds that even quite minor decisions require a great deal of systematic preparation.

If one considers what has resulted from the systematization of project appraisal and evaluation, the rural development manager should be grateful that management information systems and implementation planning are in their infancy. A clear danger is that those developing the new technology invariably will assume the "blueprint" model of linear decision-making. They see the need as introducing greater control over field units to make them conform to prior objectives, little realizing that in a fluid environment this goal is itself dysfunctional to the system they are "improving".

D. Project/Program Evaluation

Information that accumulates within an organization's reporting system can also be used for longer range purposes, to learn from experience, or to judge performance. The term "evaluation" encompasses both aims (Comfort 1980). But it uses procedures which emphasize the second. Stake (in Perloff 1979:55) puts it very clearly:

> Persons having the responsibility to evaluate some program are expected to pass judgment on its worth. At the moment of evaluation, their responsibility is not primarily responsibility to understand, nor to make a decision about that program. The evaluation responsibility is a responsibility to make judgments.

We like to tell subordinates the goal of evaluation is to learn from experience, but they are rarely fooled. Judging is a question of assessing target achievement. It is intrinsically a threatening activity, which diminishes the prospects that genuine learning will occur.

Problems: Judgment, Cost, Utility

The judgmental function is a definite problem for LDC rural development programs. *First*, to conduct systematic assessment one must have clearly specified goals and a time frame against which rates of achievement can be plotted. This point is emphasized in virtually all the texts, which are heavily oriented towards the American experience (and towards US managerial technology)—see Hayes (1966), Suchman (1967), Rossi and Williams (1972), Weiss (1972) and Franklin and Thrasher (1976). But in the muddled situations of real policy decisions one may discover that there are problems to be solved, but nobody knows enough to specify likely solutions; that vague goals are often politically necessary; or that official goals are either partial or badly chosen.

In the even more ambiguous situations of LDC policy application, the clarification of goals may not occur until several years of effort have been invested. The *end* product of the initial learning cycle postulated by Korten (1980) is to discover an effective institutional model and with it the ability to specify appropriate goals. Thus US evaluation technology is more suited to the middle stages of program development than to assessing the initial stages of project or program evolution. We also saw earlier that initial project planning often stipulates unrealistic time schedules. The official methodologies now in widespread use compound this error by adopting econometric time estimates as if they were phrased in real time. The effect is that rates of achievement will almost always appear disappointing.

Second, where administrative systems are below the threshold for effective interaction, actual achievements will fall considerably below potential productivity—perhaps by as much as 50 percent or more. What appears to be poor performance may actually represent excellent results if compared against other, similar programs under the same constraints.

I recall talking to a team of researchers whose surveys allowed them to evaluate marketing cooperatives in Kenya. They found them corrupt, inefficient, and exploitative of peasant farmers. They then repeated their survey in neighbouring countries, and confessed afterwards the comparative context greatly altered their initial judgements. *Generally within LDCs the meaningful figures are those which compare performance within common situational constraints, rather than those which measure progress against official or potential performance targets.* The first step in evaluating any LDC field program would be to determine the feasible performance range in the local setting for that given function. Only then can one decide whether formal goals are realistic, appropriate, and complete

Third, the discovery that *some* evaluation can be helpful has been rapidly extended to the much stronger assumption that definitive evaluation is always desirable. Certainty is guaranteed within the technology by applying "scientific" (in reality, experimental) research designs and by emphasizing "objective" data. This means carrying

out baseline surveys before field activities begin, and follow-up surveys after intervention is complete. In East Africa we found that the typical multi-subject baseline survey with a stratified sampling plan and adequate preliminary analysis represents roughly fourteen to eighteen months of work by a team of from two to four senior researchers supported by vehicles and lower level enumerators—i.e., about half the input required for a modest field program. (In the US, of course, we routinely conduct such "evaluations" by telephone, and feedback questionnaires are no longer addressed directly by human intelligence but simply categorized on arrival to suit anticipated response categories.) The technology places heavy demands on the researcher's energy and skill, and should *not* be combined with other assignments. This means either that one team member will be primarily the program documentarian, or that an adjunct group with independent resources be engaged to carry out the evaluative surveys. It is fortunate that enough work of this nature has now been completed in Third World settings so that the necessary changes from standard Western practice are known. Several excellent field manuals exist: Zarkovich (1966), Hursch-Cesar and Roy (1976), O'Barr et al. (1973), Connell and Lipton (1977), Foster et al. (1979), and Kearl (1976). These should be taken into the field by anyone expecting this kind of assignment. Andrew and Hildebrand (1976) give a useful overview, differentiating applied from pure research.

Questionnaires

Field questionnaire surveys are expensive in other, less obvious ways. In a more backward community they require substantial logistic support (already a constraint), special skills (usually lacking in a field team), and a major public relations exercise to explain why they are being done. The persuasion needed to gain access biases results (the acquiesence syndrome), generates immediate demands in the control communities that they, too, be included, and uses up a field team's social capital. A survey can be an effective method of introducing a new program to the *experimental* locations, but this gain is offset by the negative after-effect lingering in the control areas. Response stability is typically low (though very few researchers ever return to discover this fact), and questionnaires are often so badly formulated key questions cannot be answered even if the entire exercise is carried through to completion. Field teams commonly encounter severe data processing bottlenecks, and all that finally emerges is a set of frequency tabulations for the major descriptive variables. Such results constitute valid data of a kind, but they are woefully inadequate for the purpose of definitive evaluation. (I have usually found that an intensive debriefing of the field interview teams provided better insights than the main survey itself.)

These comments derive from my own field experience (I have been associated with about fifteen surveys of this nature) and contradict the received wisdom represented in most US sources. For a more conventional review see Weiss, Waterston and Wilson in Rondinelli (1977) and the Franklin and Thatcher (1976) volume.

The reader may have concluded I am opposing *all* forms of systematic data acquisition to assist rural development. To the contrary, what I urge is that the different information technologies (itemized in Table 3.5) be kept in balance, precisely *because* some kinds of information are critically important but can be displaced from a team's attention by the demands of more formalized (but inappropriate) technologies such as project appraisal and multi-subject questionnaire surveys. Purposes 9, 15, 17, 20 and 21 in Table 3.5 are among the most significant of any information needs in the life of a project, but we totally lack a procedural technology for meeting them systematically.

Evaluation versus Learning

It is particularly unfortunate that measuring project and program outputs is thought to foster learning from experience. *First*, unlike performance measurement *per se*, learning requires insight: the acquisition of better understanding about causal mechanisms. Routine procedures which monitor trends rarely furnish this larger picture. *Second*, in ambiguous settings, *learning is more likely to occur through framing alternative hypotheses* than by seeking ever greater degrees of certainty in regard to a single hypothesis. *Third*, to truly learn from experience one must document what the actors perceive and hence what motivates their decisions. "Objective" data compiled without cross-referencing to perceived constraints becomes sterile, even misleading. *Fourth*, the more types of evidence we review, the more likely we are to arrive at valid interpretations—since a prime source of error in any one methodology is the assumptions one must make in applying it. And, *fifth*, flexible learning does not usually occur under situations of stress and high ego-involvement such as characterize the evaluative encounter. Organizational learning is a mysterious process about which we still know very little. The people doing this learning are the managers themselves, but often they cannot fully express what the lessons have been. Only by rare accidents of recruitment do organizations overcome this block to learning.

To the extent that a field unit has managerial competence it can realize major accomplishments without having *any* formal evaluation or even documenting how progress was achieved. Managers realize this intuitively. The more capable ones often resent the incessant requests to supply processed information so that distant supervisors can be relieved of their anxieties. The enormous increase in information demands which accompanies "ra-

TABLE 3.5
Data Requirements in Rural Development

Type of Use:	Specific Purpose:	Source/Linked Technology:
I. Planning	1) Area-based planning	Multiple sources, technology in infancy
	2) Crop industry planning	Based on district reports & experience
appraisal	3) Village planning	Project planning methods, needs analysis
	4) Project selection	Highly developed project appraisal methods
	5) Program design	Based on personal experience, plus institutional model
	6) Implementation planning	Time budgeting methods, manpower planning
	7) Budgetary planning	Standard administrative procedures
	8) Work planning	Informal techniques MBO, annual review
	9) Contingency/crisis planning	Lacking
	10) Impact appraisal	Evolving technology, depends largely on donor requirements
II. Monitoring	11) Budgetary reporting	Standardized administrative procedures
	12) Activity reporting	Standardized reporting cycle
management-information systems	13) Performance trends	Crude comparisons from reports
	14) External threat/crisis	Informal, manager's experience
	15) Change in conditions/assumptions to warrant replanning	Lacking
	16) Impact monitoring	Based on reported statistics, "guesstimates" sometimes linked to field surveys
	17) Bottleneck identification	Lacking
	18) Benefit/cost situation	From internal reports if required
III. Learning	19) What went wrong?	Donor's assessment, in-house review
	20) Is image faulty?	Lacking
evaluation	21) Design improvements	Lacking
	22) How well did others do?	Informal comparisons, before/after surveys
	23) Full experiment	Survey methodology, scientific design, baseline & termination surveys
	24) Impact assessment	Mixed methodologies: reports, interviews, and sometimes field surveys

tionalization" of project development to suit modern managerial practice is a tremendous burden on LDC field teams. Faced with a bewildering jumble of needs, demands, problems, and uncertainties they must begin generating quantitative data on "project accomplishments" almost from day one. These demands are burdensome not only because they are intrinsically unnecessary but also because in many LDC's the means for acquiring, storing, and handling information are so poorly developed. Routine data which in a developed nation the secretary reads from microfiche cards may cost the project manager days of extra work looking through discarded files and trying to trace departed staff members. Requests for elaborate information will require full-time attention, and will be satisfied at the expense of the field program. The manager's annoyance increases when it becomes clear much of the information does not bear vitally on project success, and once produced has no further utility for the field team.

The issue looks quite different from the supervisor's perspective. Planners at headquarters find their projections are strongly constrained by an inadequate data base. Encountering resistance from the field team, the supervisor puts it down to the "intoxication of crisis management" by "movers and shakers" who dislike having to specify what they are doing (Morss and Gow 1981:17-18). From the topside view, managers of this type may be needed to get a field program past the teething stage, but the sooner they can be replaced by "systematizers" who will formulate detailed implementation plans and stick to them, the better. Seen from above, the problem of rural development information is that there isn't enough of it and it is usually out-of-date. If only we could plan projects in detail and define precise targets. Then the causes of failure would be pinpointed in evaluation, and the deficiencies rectified in the design of second generation projects.

Conclusion: The High Cost of Information

It will be clear to the reader that I do not share these suppositions, though they predominate in the literature. The goals of monitoring progress, judging performance, learning from experience, *and* offering effective service are probably incompatible for any but the very largest field programs. The basic point is that while most planning models treat information as a free good, this is not necessarily true of organizations. For the field team, information is a *product* whose acquisition and processing uses up real time and resources. Furthermore, in an LDC many types of information we customarily expect within Western management are not openly exchanged, and requests for them may damage a team's credibility with its clients.

Ilchman's proposal (1972) that we determine the "optimal level of ignorance" needs to be taken seriously. Modern managerial technology, because of the ease of copying and the huge storage capacity of the computer, is demanding more and more detailed records. They presume total documentation on every aspect of program activities. One of a manager's primary tasks in an LDC setting is to find ways to minimize the information load being carried by the field team, by identifying the relative importance of different information types for program success, producing as much as possible of the vital information from a program's internal reporting system, and delegating most other specialized information production to outside agencies or researchers. But it is likely that in coming decades the production of rural development information will become even more of a problem than it is today.

CHAPTER FOUR

Projects

Different Types of Projects

Technical Assistance Projects

National Development Programs

Local Development Efforts

Projects are, in the words of J. Price Gittinger (1972:1), "the 'cutting edge' of development." Within the broad sphere of induced rural development project analysis and implementation have received the most attention. It is significant that the best general collection of materials on our topic, by Rondinelli, is titled *Planning Development Projects* (1977). It is equally symptomatic that the longest selection in that volume—an excellent review of project design by Weis, Waterston and Wilson—holds fourth as model "project" examples Mexico's PIDER Program, the Philippine Masagana 99 rice program, the Rockefeller Foundation-assisted Puebla Project, the Gezira Scheme in the Sudan, the Kenya Tea Development Authority and the Comilla Program in Bangladesh.

Not one of these is a project in the form usually encountered—a grass roots organization attempting to bring about development at the village level. All constitute major *programs* embodying large inputs of technical assistance or of national-level attention. Thus Cochrane is quite right to add the proviso (1974:126): "It might however be more nearly correct to say that 'projects are the building blocks of foreign aid'."

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A. Different Types of Projects

There is a tendency to regard "projects" as a single topic. This may explain why the literature on rural development administration is so unsatisfactory. The demands an administrator must face vary greatly depending on:

1) the origin and intensity of project resources
2) the degree of production responsibility
3) the technical function being provided
4) the type of farming system and community served
5) the ideology of intervention employed.

The first of these five categories is addressed in this chapter; the others will be taken up in subsequent chapters.

The level and type of resources that individual projects command have a large influence on field operations. As one visits rural development efforts in the field, it is surprising how greatly projects vary in the resources they command. The difference can be conceptualized along two dimensions. *First* it is useful to separate the "high" from the "low" factor intensity projects. These are economist's labels, but they often reflect the presence or absence of an accompanying program organization. The main sources of high intensity inputs are international technical assistance, a national development scheme or a combination of the two. A *second* cross-cutting distinction relates to the type and quality of inputs made available. We distinguish projects enjoying external assistance (at any level of factor intensity) from those that rely upon only indigenous resources. A national development scheme will often have a technical assistance component and is therefore doubly advantaged. The typology looks like this:

	Internally assisted:	**Externally assisted:**
High factor intensities:	National development schemes	Technical assistance projects
Low factor intensities:	District projects	Voluntary agency programs
	Local association projects	Volunteer projects

B. Technical Assistance Projects

Technical assistance projects have provided much of the documentation from which our knowledge of rural development derives. Technical assistance projects have often been justified as "pilot" efforts intended for eventual replication. Both Ruttan (1975) and Korten (1979) point out this is not happening in practice. When we consider the structural constraints that accompany technical assistance we can see why.

The Elaboration of Organization

Technical assistance projects in most cases furnish experts to assist an LDC in carrying out a jointly negotiated program. I say *program*, not *project*, because to justify the extra housing, vehicles, and equipment required by the outside staff even a small-scale intervention quickly balloons into a substantial commitment. Its size generates ambitious objectives. But the donor agency wants assurance there will be local experts to assume control by the termination date, and the host country needs staff to watch the experts. Thus emerges a duplicate hierarchy of "counterparts," whose unenviable situation is examined in a collection edited by Spitzberg (1978). The inherent redundancy is masked by such fictions as the premise that the experts 'advise' and the counterparts 'execute'. In fact the dual structure is politically necessary because neither the host government nor the outside agency can delegate away matters which vitally affect its own interests. As many observers have noted, technical assistance projects *typically* exhibit factor intensities far beyond what the host country could supply on a mass scale.

This hybrid structure produces many administrative complications. *First*, there tends to be a long and redundant chain of actors—some of them not even residing in the same country—whose approval must be obtained on most important actions. *Second*, any action can take on political overtones for the opposite side, so that delays occur frequently. *Third*, both sides have their own administrative sub-systems for recruitment, reporting, purchasing, accounting, scheduling, and control of movement. These do not coincide either in substance or in timing, so the overhead activities required for routine operation are doubled (trebled when an independent contractor is hired by the technical assistance agency). *Fourth*, special restrictions often require that the donor nation's suppliers will be used, irrespective of their local capability. *Fifth*, the 'counterpart' system is frustrating to both sides and seldom operates as anticipated. *Sixth*, technical assistance projects often cross-cut local organizational boundaries and may use a multidisciplinary team as the operational unit. If, as in many World Bank or UN projects, the team is split into rival factions made up of several nationalities, the prospects for internal conflict become well-nigh irresistable. See Gitelson's case study of the ill-fated Mubuku Project in Uganda (1975:31-58) and Tanner's (1962) classic analysis of conflict on administrative outstations. *Finally*, the sheer size of such teams necessitates a prolonged logistic effort to obtain housing and transport.

The Quest for Autonomy

The commonest device for minimizing these structural tensions is to permit the technical assistance group to establish its own identity as a "development project." Once this status is attained it is easier for the field staff to maintain its own financial, reporting, and control devices. Burgess noted in the late 1960s that the diversity of organizational frameworks initially employed in technical assistance had given way to a universal reliance on the project format. More than a decade ago he was warning against the tendency "to regard the 'project' approach as a final and complete answer" (1969:167). Although the autonomous project gains a reduction in delays and frustration experienced by its field staff, it incurs all the long run weaknesses we summarized earlier in relation to 'pilot projects' as an intervention strategy. Unfortunately donor agencies still view the project format as a prime means for achieving development goals.

The dangers of the autonomous project have been described by Lele for the Lilongwe Project in Malawi and two integrated rural development projects (WADU and CADU) in Ethiopia (1975:127-141). After six years' field operation the Lilongwe Project produced only one local candidate qualified for a top-level management position—he then transferred to another project—while in the WADU Project twelve graduate-level Ethiopians left and none had taken over any of the expatriate posts. Lele observes that even the well regarded CADU Project "had not yet had a significant success in augmenting the indigenous administrative capacity in Chilalo or in developing viable grass root institutions" (1975:137).

The paradox we see repeated in program after program is that in order to meet ambitious production goals new projects exclude themselves from the very organizational frameworks they are claiming to influence. It is time to admit that almost anywhere in the tropics, provided one has a cereal grain crop, plenty of money, a few proven managers, and freedom to work outside of the local administrative system, it is possible to show dramatic production increases in the short run. But such success is not evidence that the long run capability of the indigenous system has been changed, or that large numbers of peasants have genuinely benefited.

Evaluating Technical Assistance Projects

The complex organizational structures that typify technical assistance projects make them extraordinarily difficult to evaluate. This fact is rarely acknowledged. Until recently there has been a sharp disjuncture between project case studies and more general analyses of foreign aid, such as Jackson (1969), Pearson (1969), Wall (1973), White (1974), and most recently Brandt (1980). There were country studies of course: US aid to Iran by Amuzegar (1966) and to Thailand by Caldwell (1974); British aid to Kenya by Holtham and Hazelwood (1976) and to southern Africa by Jones (1977); Swedish aid by Radetzki (1973), Dutch aid by Zeylstra (1975), and Australian aid by Boxer (1969)—and the start of intra-regional comparisons; for East Africa see both Gitelson (1975) and Gordenker (1976). But hard-hitting analyses of donor activities written from an insider's perspective are recent: Tendler (1975), Gardner (1980) and Mickelwait et al. (1979) on USAID, and Hurni (1980) and Van de Laar (1980) on the World Bank. These studies do not paint a flattering picture of the actual effectiveness of technical assistance. A critical look at what foreign assistance can accomplish in rural development and at methodologies for realistically assessing impact is overdue (Kilby 1979).

The reasons balanced evaluations are so hard to come by are both structural and political. As Montogomery shows (1967:79), all the usual imponderables in project-environment and project-output linkages are doubled once two sets of parallel actors are involved. With projects that involve a contractor they are trebled. Each set of participants can usually find actions by the others to blame should goals not be realized. Furthermore, there is complicity between the host country's organization and aid agencies *not* to divulge the true extent of intervention by the outside power. See Montgomery's review of "aid tactics for reform" (1967:62-65). In my experience, USAID frequently resorts to legal technicalities as a delaying or pressure tactic ("conditions precedent" they are termed), but the amount of ill-will these cause is rarely revealed unless things go really wrong. The backstage maneuvering that accompanies most large aid projects is seldom admitted, though Gitelson's account of UNDP projects in East Africa comes close (1975).

To survive in its politically charged environment, any large development project usually develops its own mythology. This consists of a selective integration of "facts" drawn from out of a turbulent universe of opinions, difficulties, extenuating factors, outputs, impacts, and plain excuses. Chambers calls this selective filtration of data the "development tourism" function in technical assistance (1980:7-11). A technical assistance project will usually receive a never-ending stream of unannounced visitors. In the Masai Project we encountered US Congressional aides, senior officials from other African nations, American Ph.D. students, carloads of consultants, USAID auditors, and GAO auditors. They must all be met, briefed, and accompanied in such fashion as to cause minimum disruption to the hard pressed field team. For a project's survival, the ability to brief outsiders while providing a quick sampling of field conditions is essential. In a remote setting the project team will of necessity spend the first three to four years establishing its logistic base, but this is seldom identified as a primary project goal. Thus, it is most important to fabricate a simulated but compressed technicodrama (customarily acted out by

"pet" farmers) for the visitor, which anticipates what the project *hopes* to accomplish.

It should not be too surprising that the local people who are the ostensible reason for all this expenditure may generally hold somewhat contrasting opinions. We found this was definitely the case on the Mwea Scheme in Kenya (see the chapter on tenant life in Chambers and Moris 1973:299-313). Peattie also found this among the barrio residents subjected to the Cuyad Guayana project in Venezuela (in Rodwin, 1969:453-464 and also Peattie 1968). Sometimes the discord is so great one finds it hard to recognize that the same project is being described; cf. the Gezira scheme as viewed by its management, Gaitskell (1959) vs. the outside observer Barnett (1977). Trend, only half in jest, calls it the "Rashomon Effect" (1978:350). While there are studies that would explain how this phenomenon arises in modern industrial contexts (Fox and Staw 1979, Van Maanen 1979), its pervasiveness in technical assistance projects is still inadequately recognized.

Field assessments usually mirror the criteria regnant in the evaluator's professional field. Irrigation schemes, for example, almost always generate conflicting assessments by agronomists looking at crop yields and public health specialists anticipating the likely incidence of parasitic diseases. The controversy can be followed in great detail in the many studies that have assessed the impact of large dams on tropical environments (particularly in Africa): See Ackerman et al (1973), Butcher (1971), Chambers (1970), Colson (1971), Farver and Milton (1972), Peter Freeman (1974), Gonzalez (1972), Lagler (1969), Lowe-McConnel (1966), Obeng (1969), Rycroft and Szyliowicz (1980), Stanley and Alpers (1975), Warren and Rubin (1968), and the World Bank (1973). Now that the impact of development projects on women is being investigated, some schemes that are well regarded for their agronomic achievements may be hedged unfavorably for their domestic impact, e.g., what Hanger documents in the 1960s for Mwea, in Chambers and Moris (1973:209-244), and Palmer's evaluation of the Nemow Project in Indonesia (1979). This is the old problem of cardinal utility: what trade-offs are permissible when radically incommensurate values are at stake?

Perhaps it is unfair to use power and irrigation projects as examples of the intrinsic contrariness of technical assistance projects, since water-related projects in the warm tropics are notorious for generating contradictory outcomes (Cummings 1978). The most completely described non-irrigation venture is probably the Puebla Project of Mexico. Here we have the full spectrum of sources: by its originators, Stackman et al (1967); staff of the CIMMYT Center (1974) and Myren (1969); visitors S. Johnson (1972) and Hewitt (1976); Ph.D. students Issa (1976) and Gladwin (1977, 1979); and hostile critics, Paddock and Paddock (1973). Without access to all of these accounts—particularly Gladwin and Issa's micro-data—it would be foolhardy to render judgement.

Hidden Subsidies

Less completely described than Puebla but of a similar duration was Cornell's Vicos Project, which the anthropologist Holmberg initiated by leasing an entire village in Peru (Dobyns et al. 1971 and Mangin 1979). Writing later about "the transferability of Vicos strategy," Lasswell insisted "the program as a whole is transferable" but then remarks that "the participation of highly trained scientists...had an important influence on the tempo of change over a fifteen year period," adding that had a less prestigious university been involved the outcome might have been different (Dobyns et al. (1971:171).

Then we have the Comilla Project in Bangladesh (formerly East Pakistan). It was launched when Michigan State University under Ford Foundation funding brought the entire initial staff of two rural development academies (consisting of the directors and nineteen faculty members) to MSU for an academic year. Some members did sufficient academic work to earn Master's degrees, and all were taken as a group to Jamaica and variously to Japan, the Philippines, England, Norway, and Sweden after their formal training. (Raper 1970:29-32). More recent documentation on Comilla is provided by its director, Khan (1974), and by H. Blair (1978), Coward and Ahmed (1979) and McCarthy (1977). As David Bell of the Ford Foundation notes in Raper (1970:vii):

> The Comilla story centers in a more important sense around a man—a remarkable man—Akhter Hameed Khan, who except for a brief interlude has been director of the Academy since its inception and is the prime cause of its success... Khan was a brilliant young government official who in 1944 retired from the Indian Civil Service to devote himself to what would now be called development work in rural areas...the Academy was located at Comilla, a rather obscure place, in order that he could be persuaded to become its director.

It also appears that the Academy's initial staff all had M.A.'s and 4 had Ph.D.'s at the time of their recruitment, and that the Comilla *Thana* has a relatively low proportion of landless laborers compared with other areas in Bangladesh (Raper 1970:37 and Blair 1978).

It seems without question that these much acclaimed "projects" received substantial hidden subsidies in the form of expert attention and protracted funding, far beyond what similar ventures can expect these days in most LDC's. The best we can hope for is to transform such "projects"—more accurately viewed as major international technical assistance programs—into national

schemes whose munificence can be justified by the achievement of some overriding national goal. The Comilla Academy in Bangladesh did undergo a transformation of this nature, becoming the prototype for a much expanded field program. In effect this was what the Rockefeller Foundation attempted in converting its several agronomic research programs into international institutes of agriculture, e.g., IRRI, CIMMYT, etc. But let it be clear that from the standpoint of field application this was an oblique step, since such institutes cannot become directly responsible for advising field extension services. Few would dispute the value of the research that has been carried out, but its extension to the village level remains the same problem it always has been.

C. National Development Programs

The prospect for transferring experience to lower levels improves when we turn to national rural development programs which draw their impetus primarily from within a country (though these, too, often have technical assistance components). Best known are probably Mexico's PIDER program (Cernea 1979); Senegal's rurale animation teams (Moulton 1977 and Goussault 1968); Kenya's KTDA (Blume 1971 and Steeves 1975, 1978); Kenya's SRDP (IDS 1973, Chambers 1974, Leach 1974 and Livingstone 1976); Ethiopia's CADU scheme (Aklilu 1976, Cohen 1974, Gebregziabher 1975, Lele 1975, and Stahl 1974); India's Panchayati Raj (community development) program—(Franda 1979:116-146, Mathur 1978, Mayer 1958, Shiviah 1978, and Shukla 1978); and the Masagana 99 Program in the Philippines (Alix 1978, FAO 1971, IRRI 1973, and Lewis 1971). Excluded from this listing are settlement schemes or nation-wide reconstruction ventures such as Tanzania's Ujamaa villages or China's communes.

A fair body of evidence has now accumulated, but we very much need the kind of system comparison between programs of this type which Lele attempted for the World Bank-assisted African projects (1975).

Classifying Projects

To compare one needs to classify. Weiss, Waterston and Wilson in Rondinelli (1977:95-97) group projects under four headings in accordance with the degree of novelty they evidence: experimental projects, pilot projects, demonstration projects, and production projects a suggestion further elaborated in Honadle and Klauss (1979). They put the Masagana 99 Program in type three, and the Mexican PIDER (or intergrated development program) in type four. Their fourth category would combine efforts at vastly different levels of scale, ranging from a single tobacco settlement to a nation-wide resettlement campaign like Tanzania's Ujamaa village program. Large-scale integrated rural development programs like PIDER or Kenya's SRDP do have many things in common—but the *one* key thing they lack at their inception is the trait noted by Weiss et al: that "the technology be fairly well proven" (1977:99). The reason is simple enough: in most tropical environments when one deals with several regions ecological diversity makes it highly unlikely that a centrally devised technology will be generally applicable. Since successful development programs have usually undergone several stages—the Mwea Irrigation Settlement in Kenya provides an excellent example—a dynamic basis of classification like that provided by Korten (1980) is more useful.*

Both Lele (1975:142-161) and Weiss et al. (1977:122-127) regard the choice of the project implementation structure as a critical feature. A national program will usually encompass several hierarchical levels—the PIDER program to alleviate rural poverty in 100 microregions found three levels necessary: federal, state, and village/*ejido* (Weiss et al. 1977:100). Such a venture can quickly grow to a size where it rivals a government ministry. It involves all of the issues examined in chapter two about program organization, but economists still prefer to see these activities in the project framework. Viewing the program as a discrete entity it has five alternative ways to implement its activities (Weiss et al. in Rondinelli 1977:122 ff.):

1) expanding existing bureaucracies
2) creating an autonomous or semi-autonomous organization
3) establishing a project unit reporting to the center
4) establishing an organization reporting to field agencies
5) contracting for outside services.

The analytic metaphor remains that of a production unit with "inputs" and "outputs." But it is just as sensible to see programs of this nature as *facilitating organizations* which are attempting to increase the productivity of a larger administrative structure. If so, an analysis of intervention strategies becomes an alternative, politically-oriented way of viewing the same reality. For this reason we shall return to the issue of organizational connections in our next chapter where we examine projects that do have a linking role as their primary administrative function, e.g., agricultural service delivery systems.

Here it is instructive to compare the subtle shift in emphasis between the de Wilde (1967) review of development services which the World Bank was then supporting to Lele's (1975) review of projects. In her book, Lele keeps

*Montgomery (1980) proposes an alternative classification into Type I and Type II projects, depending on whether they are aimed at the general public or at special groups such as the poor.

returning to problems of *service* organization, but the project framework imposed on her discussion obfuscates her analysis. The same distortion runs through most of the selections in the Rondinelli volume (1977). If we could for the moment lay aside our preoccupation with "projects" as entities the many organizational similarities between national programs like PIDER and the SRDP or Masagana 99 would be evident. Kulp's (1977) methodology for area-based planning appears particularly suited for efforts of this nature.

That national rural development programs have much in common with technical assistance becomes clear when we move to the lower level of district and local projects. Most project cases in the rural development literature are large investments complete with their own ideologies, experts, transport, and nationally guaranteed resources. The outside expert has little appreciation for what it is like to promote development at a village level without these supports. Furthermore, the national project moves into the local decision-system under the penumbra of official policy, sometimes accompanied by rumors it is the president or prime minister's godchild. When employed in the Tanzanian administration I found that experts working in the Prime Minister's Office had little idea how difficult it was to make the structure (which they had helped devise) work. National projects move quickly through the complex approval procedures precisely because they are known at the lower levels to have originated from above.

D. Local Development Efforts

To find how local initiatives fare without such advantage one must turn back to the voluminous community development literature for the earlier period (pre-1970), and to more recent studies of nonformal education (here the Michigan State *NFE Exchange* is most useful).* Authors examining rural participation also overlap this topic (we shall review them in chapter five).

At the local level elaborated and well-bounded *projects* may not be the preponderant organizing framework, perhaps because full time staff cannot always be assigned to just one project. Sometimes the community becomes the basis for integrating development activities, e.g., village development activities or a "problem area" focus. In several of the more interesting cases an outside activist (be that person a missionary, volunteer, or a returning influential) or, less commonly, a team of workers begins to assist a community *without* specifying in advance the nature of anticipated outputs. Many voluntary agency programs are of this nature (Watts 1969).

Schwenk (1979:7-12) describes how in Sarawak an agricultural missionary started a small dairy farm in 1951 with Jersey cows imported from the US, followed in turn by Nubian goats, pigs, poultry, fruit trees and fish ponds. Only in the third cycle of experimental adaptation did the staff finally concentrate upon rice, which had been the people's staple all along. He aptly characterizes this process of *unlearning* Western agricultural technology as "working backwards to development." Organizational unlearning seems to be easier to accomplish when specialists are held accountable for community needs rather than specified outputs.

Different Factor Intensities and Their Effects

A striking feature of low level projects is the very modest expenditure that local communities can support. Expenditures will concern items at the scale of a kerosene refrigerator for the dispensary or a footbridge for the school. Transport becomes a major consideration—can we afford a bicycle for each worker?—though the hidden subsidy of the organizer's vehicle (free to the village) tends to be glossed over.

Another difference is that one quickly learns how easily anything mechanical goes wrong in a moist, tropical environment. If the repairs required are complicated, that particular component of the program comes to an abrupt stop. A further finding is how hard it is to keep money in villages too small to have a bank branch. Any cash accumulation becomes an invitation for robbery, absconding, or a "kitty" to draw upon for sundry "necessities" (bribing the magistrate, celebrating the bishop's visit, etc.). Time and time again the community developers set up revolving funds (as likely as not out of their own pockets) which do turn over—once. When money is spent to build or make things, oft-times the quality of work is so poor the facility can only be used for a few seasons.

These remarks aim to make vivid the great disparity in factor intensities between national and local level projects. The idea that the program experience of organizations at the scale of, say, the KTDA in Kenya or PIDER in Mexico has direct relevance for village level initiatives is simply absurd. We discovered this in Kenya's Special Rural Development Program (SRDP) when we tried to make local replicability the first criterion for weighing project proposals (Heyer et al. 1971). The vast superiority of national resources fosters dependent attitudes among local leaders, who become accustomed to waiting patiently for the omnipotent central authorities to take note of the village's particular needs. It is especially difficult to

*An introduction to the community development literature is found in Holdcroft (1978) and Brokensha (1969). Other sources from the bibliography that are related include Haney and Haney (1975), Kaufman & Bender (1976), Johns (1975), Speight (1973), and Walker and Hanson (1978). Sources on nonformal education include Ahmed and Coombs (1975), Bhargouti (1973), Coombs and Ahmed (1974), Sheffield and Diejomaoh (1972), and Srinivasan (1977).

encourage local action if the attitude prevails that the village's problems stem basically from its lack of access to influence at the center.

Local Projects: The Dominant Organizational Issues

The dominant issues in the organization of local projects include: how to arrange and control decentralized funding; how to staff and fill managerial posts; how to safeguard the use of common funds; how to tax low value and highly perishable crops to support necessary services; how to make central government employees locally accountable; how to coordinate central government activities within the community; and how to encourage active participation.

The sources which deal most directly with the commercial aspects of local organization are those reviewing production and marketing cooperatives in the LDCs (Dorner 1977, Dulfer 1974, Hyden 1973, Inayatullah 1972, Long 1976, McHenry 1976, Siebel 1974, Somjee and Somjee 1978, Widstrand 1970, Worsley 1971, and Yetley 1978). The problems of cooperatives, often seen as being generic to co-operative organization, are just as likely to be situational. Any low level field organization that handles money—call it what you will, "co-operative," "business," "Ujamaa village," "Panchayati Raj," "Village Council," etc.—will evidence many of the same traits. For example, Franda's (1979:126-129) account of nepotism and corruption in the Indian Panchayats reads suspiciously like the description of African co-operatives in Widstrand (1970) and Hyden (1973). Tanzania abolished marketing co-operatives a few years ago, only to discover the same weaknesses reappear in the people's shops which every Ujamaa Village is supposed to operate (von Freyhold 1979). Much more could be done analytically with the rich materials comprised of case studies on co-operatives.

Two other sources of knowledge on local development efforts are the voluntary agencies and the volunteer programs. Both customarily operate within much tighter fiscal constraints than economic development projects, and both put human impact above technical achievement. Employing a participation ideology (see chapter five), voluntary agencies generally allow their staffs greater freedom to experiment and more time to show results. OXFAM has a particularly good reputation in the LDCs (Stamp 1977)—but there are a number of other success stories of a similar nature (Watts 1969 and the Inter-American Foundation 1977). Of course, one has only to look at food relief programs to see that when such agencies undertake large-scale projects they soon develop the classic bureaucratic features we have been discussing (Morris and Sheets 1974).

Another body of neglected experience relates to volunteers. See Hapgood (1968), Textor (1966), Morris (1973) and a vivid account by Thomsen (1969). Most sending nations maintain documentation on each volunteer's experience. Since many volunteers work within villages, their reports, if systematically analyzed, might give valuable insights into the problems that typically occur at the local level.

These diverse bodies of experience do add one more insight we will miss if we confine attention to the large-scale projects: the great motivational significance of generating local self-confidence. Confidence must be nourished by small successes in day-to-day affairs; it cannot be bought. It grows out of group pride in a gradually widening mastery of problems that could not be solved by individual action. Once it takes root (a transition yet to occur in most rural communities), it fosters a more positive style of leadership, as the leader can no longer add to his prestige by opposing changes. The increase in interpersonal trust makes people more willing to invest, and raises the productivity of such investments. Most important, it reduces the pervasive factionalism rooted in the zero-sum rationality of peasant communities, where one person's advancement always comes at someone else's expense (Foster 1965).

The Distinctive Merits of Local Projects

Many commentators have noted the catalytic effects of such experience in releasing latent energies and skills which may have been present all along. Local self-confidence is also essential to counteract the imbalance between the weak village community and the massive power of the modern state (Vera 1978). Perhaps this is the primary conclusion one can draw from the Vicos experiment in Peru (Dobyns et al., 1971). The relationship between group trust and individual advancement can be seen quite clearly in the case histories of Seventh Day Adventist and Jehovah's Witness groups who have become among the most successful farmers in central Africa (Long 1968:240-244 and W. Jones 1977-78).

Basic attitudinal and belief systems do underlie economic behaviour, even if orthodox theory has paid them scant attention outside of European economic history. Three excellent sources advance this argument: McClelland and Winter (1969), Lauterbach (1974), and Graves and Graves (1978). Possibly the most potent criticism against the typical bureaucratically-implemented large-scale program is that it often destroys community self-confidence. The very instrument funded to accelerate development then accentuates passivity and alienation in rural communities. It would seem that a "people building" strategy ought to yield at least as much genuine development as the infrastructural investments which international technical assistance so often encourages, but less often achieves.

CHAPTER FIVE

A Systems Perspective

Direct Production

Production Services

General Administration of Rural Communities

We can conceptualize rural development as involving *systems* instead of projects. To do so it is useful to distinguish among administrative organizations according to their essential responsibility:

1) Operational management of agricultural production
2) Organization of linked production services
3) General admistration of rural communities.

We then have three basic types of systems distinguished by the major role each plays in rural development: operational units, linking systems, and co-ordinating structures. Rural development encompasses all three. But the technical content and the degree of difficulty escalate as one moves up our hierarchy from general administration towards the field units charged with the daily management of agricultural production.

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A. Direct Production

Tropical agriculture requires a high level of organizational support. Tropical farming systems tend to be complex, particularly on the smallholder's farm. Administrative activities are tied directly to living plants and animals in a hostile environment, so the effects of mismanagement can be dramatic. It is simply not possible to reschedule milking and harvesting to suit a manager's convenience. Living systems generate needs that cross-cut functional specialties. An operating farm requires credit, soil surveys, water development, disease diagnosis, and so forth. Management cannot avoid dealing with ten to twenty service organizations, some of them private firms but many under public management in the typical LDC. A slip-up at any one point in the production chain potentially affects all other activities. When the cows die, the productivity of all linked services is destroyed no matter how high their quality. Thus living systems are unusually sensitive to accidents of timing and supply; even a small mishap can ruin the unit's overall productivity. Finally, the tropical environment is more complex and problematic than that of the temperate zone. Disease, fire, drought, pests and scientific ignorance make the task of the agricultural manager very demanding.

The contrast between the needs and capabilities of the typical public service bureaucracy in the poorer and more remote areas of an LDC is distressing. We have here the same dilemma that faces the technical assistance administrator, but in its local guise.

Autonomy vs. the Reality of the Public Sector

To the farm manager, three desired deviations from standard civil service practice are: (a) *fiscal autonomy*, the operation of units on a self accounting basis with provision for the re-investment of profits, (b) *control over personnel*, including the right to discharge unsatisfactory employees, and, (c) *direct authority over equipment and field operations*. None of the three are found in a hierarchical civil service structure where revenues must usually be paid back to the treasury and where numerous procedural safeguards apply. The newly appointed farm manager in a public enterprise soon discovers his request for autonomy constitutes a major challenge to the bureaucracy.

The solution usually arrived at is the same as in technical assistance: creation of a separate production unit justified as an individual project and set free to operate according to rules suited to commercial purposes. This makes it subject in some degree to all the weaknesses we itemized earlier. The fact the unit remains within the public sector entails greater risks of organizational rigidity and uneconomic infrastructural investment. One has only to read Gordon's account of state farms in Ghana, included among the case studies in Bunting (1970:577-83), or Bates' (1976), of tractor stations in Zambia to recognize the difficulties.

We have almost no guidelines for the management of such hybrid units. Textbooks on farm management assume commercial management modelled on the individual farm. When a unit is owned by the state and responsible to a governing authority, numerous additional complications arise. The visiting expert reviewing rural development in an LDC will encounter many such ventures: settlement schemes, research experiment stations, prison farms, school farms, seed production units, etc. All of these are of a dual-purpose nature—one of the reasons for their higher operating costs—and most experience friction if the manager tries to run them according to the textbook.

A Case In Point

Let me illustrate with an example from the range development project I administered in Northern Tanzania (1972-76). One of the fifteen sub-programs we became responsible for (after much resistance) was the establishment of four 20,000 hectare ranches with World Bank (IDA) funding. The financial projections had been prepared by an experienced livestock economist in the capital city. They provided for one multi-purpose skilled worker on each ranch, who would be expected to perform four duties: tractor driver, mechanic, water pump operator, and dip attendant (a "dip" is an acaricide immersion bath through which cattle are forced weekly to remove ticks). All four functions were critical to the success of the proposed ranches, some of which were in the semi-arid zone dependent on pumped water, and others in East Coast Fever areas where the mortality rate for improved stock could be as high as 60 percent to 80 percent annually if strict tick control was not maintained. Also, without a functioning Landrover a ranch would be helpless to arrange for the marketing of its stock or the treatment of its animals.

We obtained permission to run each ranch on a self-accounting basis under its own manager, but it was not possible to avoid civil service hiring practices. These required a cumbersome recruitment procedure emphasizing paper qualifications and interviews rather than demonstrated on-the-job performance. They also dictated low public sector salaries which did not compete with private sector wages. Furthermore, the job market could not supply individuals who were equally adept at the four functions specified. According to custom on both private and government farms each technical function was performed by its own low-level employee. But if we created four jobs on each ranch it nearly doubled the required in-

frastructural investment (three more houses, more transport and water), as well as throwing out of balance all cash-flow projections for the critical early years.

The more closely we investigated our proposed ranches, the clearer it became that they embodied a "no-win" compromise one often sees where external loan financing is used to initiate "development" (*structured underdevelopment* describes it better). From a managerial viewpoint, a small initial herd size was desirable because of uncertainties about water supply in dry years and many environmental difficulties. Inexperienced staff would need time to become a team and build their expertise at a new site many miles from the nearest technical services. But the cost projections showed that only a large scale operation could generate enough cash flow to repay the external loan. Twenty thousand hectares constitute a big enough area, we discovered, to require Landrover transport for daily duties, and too large for adequate boundary control (in an environment with a few lions and many potential rustlers). This size of unit in the Tanzanian context invited financial disaster with the relatively unskilled management available on the local market and the harsh natural environment. We also found that the IDA loan made no provision for inflation (running at about 26% annually), nor for any internal training and development of the ranch's operational staff. None of these real world difficulties showed in the economists' cost and revenue projections, which were professionally sound and appeared to offer an acceptable rate of return on the investment.*

Effective Production Systems: Some Examples

There are some production success stories from the tropics. On close inspection one finds they derive either from special environments (ecological and economic) or from the presence of an unusually energetic and skilled manager with virtually complete autonomy over his operation. The critical task faced by such an individual is to routinize the highly personal task structure he has created (Moris 1976:422-425). In organizational terms, we can view this as the conversion of an ad hoc enterprise into an organization that can replicate itself elsewhere. For this to happen a project must become a replicable *system*.

Only a few accounts of individual schemes contain sufficient detail to trace how this transition can occur. Van Rensburg (1974) shows how the idea of Youth Brigades took concrete form in Botswana, though he admits the agricultural component was the least successful in covering its costs. Chambers (1969, 1973) documents how a strong manager converted the Mwea Scheme from an isolated project into a successful prototype for the entire irrigation industry in Kenya and became the first General Manager for the National Irrigation Board. And Blume (1971) analyzes the organizational structures responsible for tea, cotton, and oil-palm production. Other production-related projects not reviewed here include Caqueza in Colombia, Zandstra et al. (1979); the Sabi Valley Irrigation in Zimbabwe, Roder (1965); the Lilongwe Project in Malawi, Lele (1975); the land settlement schemes in Kenya, Harbeson (1973) and Leo (1978); and similar ventures in Asia, Farmer (1974) and Wong (1979).

*It is unfortunate that such problems usually are not seen as symptoms arising out of the partiality of economic analyses, but are viewed rather as being environmentally caused. Here note how Weiss, Waterston and Wilson evaluate the situation, in Rondinelli (1977:106): "In Tanzania, beef ranching projects were set back because ranch overhead costs were excessive. Poor ranch management led to annual overhead expenses which by themselves were higher than gross revenue from cattle sales."

B. Production Services

Most administrators involved in rural development do not have day-to-day responsibility for farming activities, but are occupied in providing services to rural populations. The traditional designation for this activity is extension work—a topic we treat specifically in the next chapter. In the last decade it was realized that a broad range of rural institutions can be grouped with extension work under the common heading of *service delivery systems*. Such services share many structural similarities, making possible a comparative analysis of their operation. For the time being let us concentrate on production services as a category. What these have in common is responsibility for linking farmers to outside sources of assistance needed in the farming system.

The Common Problems

The constraints which affect farm enterprises also apply to production services, with the complication that the connection is indirect. When an agricultural agent does not deliver improved seed in time for planting, the farmer's output suffers—but unlike a farm manager, the administrator is buffered from paying the cost and may not even acknowledge the effect of his inattention. A major consideration in the design of all types of producer services is how to keep them responsive to the farmers' needs. In large-scale farming the producer purchases the necessary services. This is not so in smallholder peasant farming, where the government often takes this responsibility upon itself.

The difference has important organizational implications. The bureaucracy must serve large numbers of independent smallholders with varying needs. Often peasant farmers receive very small cash incomes and avoid purchased inputs. They are reluctant to take risks—a

trait which the outside official mistakes for innate conservatism. Where the levels of risk arising from seasonality and price fluctuations are already high, farmers will be wary of the added risks they incur by joining officially sponsored programs—particularly if government services are known for their unstable and poor performance. The farmers that do join are likely to have ulterior motives, e.g., they may count on the government to ignore loan obligations. Only a few will be specialized producers. Most depend heavily on food crops whose needs compete with the cash crop for which services are being provided. It is not at all unusual to find that the technological package recommended by research experts is in the smallholder's context detrimental to his interests. To make services available to all sections of a district, field staffs are usually dispersed in small units located as near as possible to the farmers. The contact staffs tend to have the least training, the least access to transport, and the lowest incentives in the administrative hierarchy. They are placed in the most remote locations and made responsible for the delivery of complex technical services. Such arrangements are viewed by a ministry's hard pressed personnel division as the most economic use of its resources. Well intended "efficiency" measures are directed at a typical field organization—work output targets, limited funding, compressing four years of technical training into three, etc.. These efforts are notorious for their unanticipated consequences including low morale and poor on-the-job performance.

The Access Bureaucracies

The contact cadre or "bicycle men" constitute the interface between the delivery organization and its clients. These personnel constitute the access bureaucracy (Kahn 1976 and Rosenthal 1980). The comparative analysis of these instruments is long overdue, but systematic work of this nature is just beginning. The best studied country is probably Mexico (Poitras 1973, Kern 1973, De Walt 1979, Veliz-I 1978, and especially Grindle 1977). The classic work remains Eldersveld et al., (1968), whose findings on the views of Indians about their administrators are fascinating. Two particularly useful studies from Africa examine the operation of the agricultural service bureaucracy: Harrison (1969) for Nigeria and Leonard (1977) for Kenya.

Even so, it is difficult from the published literature to visualize in adequate detail what contact staffs look like: their educations and background, daily activities, organizational strategies, friendship networks, and so forth. Information on access bureaucracies is crucial for at least two reasons: this is where citizens come into contact with the modern state and presumably where alienation may fester; and if indeed the service is a linking system, then capacity at the contact level powerfully affects system potentials.

Biases and Queues

Rural sociologists have noted that contact staffs usually deal with client systems through some type of gatekeeping mechanism: local influentials, the senior male in an extended family, maybe young men who speak the national language (Nagi 1974). McCarthy (1977:367) points out that for the Comilla area of Bangladesh, "men are gatekeepers for women, controlling their access to the outside world and screening the flow of information and visitors from the outside world into the village and vice versa." Staudt (1979) finds this also true of Kenya; it seems to be worldwide. Diffusion of innovation studies have found it necessary to employ a "two step" information flow model, to allow for the likelihood that contact staff do not have direct access to all members of the community. Chambers (1980:12-28) drawing on both African and Asian experience, argues that the true extent of rural poverty is often not perceived by development staff because of structured biases of six types:

1) A spatial bias towards work where transport is easier
2) A project bias towards "pet villages" where things happen
3) A personal bias towards males, elites, adopters of innovations, and those who are outgoing and active
4) A dry season bias leaving the greater difficulties of people in the food-scarce wet season unperceived
5) A general tendency to avoid working with the genuinely disadvantaged
6) A professional bias towards dealing with only parts of the problem and not poverty in its totality.

The combination of structured biases within an agency and the gatekeepers within the client system constitutes an informal queuing mechanism. It has the effect of buffering contact staff from dealing with the full extent of rural needs.

Queuing mechanisms, either overt or covert, usually accompany any bureaucratic service which is subjected to uncertain and fluctuating demands. In agricultural delivery systems, because resources are scarce, the facilities and staff tend at best to be geared to meeting average needs. Unfortunately, by its nature agricultural production generates widely fluctuating levels of demand for support. At peak periods, when farmers are rushing to plant or weed, a delay of only a few days in receiving a service can make a large difference in output (I once saw a

field in Tanzania where the part planted on Friday survived but that planted on Monday died). But some queuing mechanism to space out incoming demand is essential or the service becomes subject to overload and random breakdown. The interesting thing to watch in a local context is how this occurs, and who benefits (Schaffer 1975, 1976).

One widely used tactic in LDC's is to disenfranchise temporarily those segments of the community who are viewed as lacking the right to expect service: outsiders, transients, seasonal farmers, the landless, even women whose husbands are absent on long-distance migratory work. Another is to serve people in rough order of their socio-economic prestige: the "big man" automatically pushes to the head of the line. It is astonishing how much time peasants without influence will spend waiting to be served. It appears socialist nations are no better and perhaps worse than their capitalist neighbours in this regard.

Another common device is to impose procedural restrictions which appear to be neutral, but which actually benefit larger and established clients. See Steeves (1978) on access to tea planting in the KTDA. Americans seem especially prone to distrust reciprocally-based traditions of access, and to insist on replacing these by bureaucratic procedures which bias the distribution of benefits towards the educated elite—a tendency often experienced in US rural communities. Of course, if this cuts off the entire community, peasants may seek the assistance of a "patron" at higher levels, leading to a proliferation of vertical linkages circumventing the official agency/client interface plan. In the Murang'a District of Kenya Steeves reports that poorer farmers denied access to tea planting banded together into an unofficial scheme under their member of Parliament. He privately secured enough tea stumps to assist about 700 "illegal" tea growers (1978:131).

Delivering Production Service, A Case Study

When analyzing problems synoptically it is so easy to avoid coming to grips with real life situations as they are likely to occur in the field. So I propose we digress to accompany an actual Assistant Agricultural Officer (AAO) for the day as I observed him some years ago in Eastern Kenya.*

We meet the Cotton Officer (as he is termed) at his field headquarters in Mbere Division, the lower and drier half of Embu District. Here the cotton program (now in its second year) has located its office and is establishing nurseries and experimental plots. The Cotton Officer estimates he has at best 240 acres of cotton underway in the whole division. No dusting is supposed to be provided for farmers with less than an acre, but in practice if the Cotton Officer thinks a farmer will increase his acreage in the future some exceptions are made. He explains that the ministry's policy of switching from insecticide dust to sprays works a particular hardship in poor and dry areas such as the one we are visiting. Farmers cannot manage the increased costs of spraying on their own; they can afford cotton spray loans only if they have some other source of cash. They are also often short of water for mixing the spray.

To make cotton spraying seem more attractive, the AAO has on his own initiative introduced Mexican 142 beans (a hybrid seed variety sold as a cash crop) which he promotes alongside cotton. The beans are planted to mature in time to be sold and the cost of the cotton spraying deducted from the payment. This makes cotton appear more profitable than it really is, since not all input costs will have to be deducted from the cotton payout. The AAO thinks with luck he may be able to extract the ploughing loans (a ministry service he advised against) from the Mexican 142 payments, and he hopes to organize cotton purchasing with ready cash payout on the spot to make the incentive highly visible. A main purpose of today's visits is to locate and list the farmers who will participate in a forthcoming combined project for tractor ploughing, Mexican 142 planting, and eventual cotton spray loans.

After leaving the vehicle where we find a group of assistants waiting, we begin to check on cotton husbandry. Cotton seed is supplied to farmers with instructions to use five seeds per hole, about 2 ft. by 3 ft. in spacing. As we move from farm to farm along winding footpaths, we frequently see instances where farmers have not thinned down to the recommended two plants per hole after germination. The Cotton Officer uproots extra plants as he goes; his assistants do likewise. It is clear the extension staff regard all cotton as their personal responsibility. The low frequency of weeding is the main topic of reprimands delivered to farmers. It is apparent in the farms visited that there is heavy competition for farmers' labor resources. Two farmers are encountered in the middle of the task of cotton weeding—for impression's sake—while in others' fields the maize and beans have been weeded instead. (The ministry is pushing new varieties of all three crops in this area.) At another spot we come upon groundnuts planted in a sprawling fashion like beans and not in mounds as they ought to be—the farmer explains his wife got sick—and the Cotton Officer clucks disapprovingly. On several other farms he gives advice about the planting, fertilizing, and dusting of the new Katumani synthetic maize. One problem farmers

* These materials are derived from a longer article in Leonard (1977, 1979, 1980). Mbere Division where this visit took place is excellently described by D. Hunt (1978), "Chayanov's Model ... and its Relevance to Mbere Division, Eastern Kenya, *The Journal of Development Studies*, Vol. 15, No. 1, pp. 59-86.

complain about is that land planted to cotton does not yield good maize afterwards, and the AAO urges them to follow cotton with two seasons of beans.

Throughout our tour, even on new land, cotton pests are evident. The Cotton Officer explains they are endemic to many of the food crops and so are not destroyed by the compulsory burning of cotton stalks after each season. He is worried about the boll worms which we find in the last two fields we visit. Because the land is here lower and hotter, the cotton has already begun to bud. The AAO snaps open the flanged bud covers to reveal the worms entwined about the center of the bulb inside. Each bud the Cotton Officer so finds he breaks off and grinds into the ground, but he also looks pleased because now he has specimens for his display board at a forthcoming field day in Embu town.

As we complete the tour the AAO takes me to visit the ministry's "experimental farm" (not under his control) which is run by an Agricultural Assistant attached to a defunct irrigation scheme. (We had actually driven over the scheme's furrows, but they were so overgrown I had not realized it.) The Agricultural Assistant who would normally be in charge has been posted to another area, and now only a Junior Agricultural Assistant—the lowest rank in the hierarchy, and officially being "phased out"—is located with difficulty. We examine the farm to discover its one acre "demonstration plot" of cotton is badly in need of weeding. The JAA explains there are no remaining funds for hiring laborers (the financial year ends in June and it is now May). The Cotton Officer gives advice to the cluster of JAAs who have gathered and who are accompanying us—all hoping to catch rides to Embu town—on the timing of irrigation for cotton and other crops. We sample several exotic fruits which a European Agricultural Officer had established on the scheme when it opened in the 1950s, and look at the dusty ledgers recording yields plot by plot in its early years. (The recording has long since been abandoned; today the farmers are using their irrigated fields to grow subsistence crops.) As we leave the AAO remarks he has been trying to organize mango marketing for farmers from the scheme area, since mangoes grow prolifically and there is a ready market a few hours away in Nairobi (the Landrover is now piled with mangoes). On the way home, we stop by the chief's office to confirm dates with him for public meetings in different sub-locations to explain the cotton program.

The Thin Line to the Field

The reason for describing a field visit at length is to establish several fundamental points about how contact services actually operate in many LDCs. Indeed, our case epitomizes the behavior one finds among the better and more energetic field officers, men who have advanced through long experience and not advanced degrees. Like the colonial officers of an earlier period they rely upon the direct personal surveillance of contact staff and farmers to provide the quality control in the services provided. The AAO we accompanied performed all the important tasks himself. With no specialized infrastructure beneath him, the Cotton Officer is critically dependent on his Landrover and mileage allowance to maintain field services. The bottom level staff, instead of carrying out basic tasks on their own, rely heavily on the AAO for instructions and are partly dependent on his transport to cover their assigned territory. Thus the clutch of AAs and JAAs who follow in the Cotton Officer's wake as he proceeds from farm to farm.

Our case also illustrates a particular mode of task integration I have termed the "hub-and-wheel" pattern. In order to make a basically unprofitable crop palatable, the Cotton Officer has at his own initiative undertaken many additional tasks: the introduction of Mexican 142 beans, continuing cotton dusting in a few instances against his own ministry's policy, giving technical advice on maize growing, and organizing mango marketing. It is evident these initiatives have staved off the complete collapse of cotton in the area, but many of them will be abandoned with the Cotton Officer's transfer. In fact, the acreage of cotton fell by 87 percent during the year in question, and the ministry wound up all the extension activities of the Cotton Board while calling for Scandinavian experts to assist in designing a new program. Leonard (1977: 198-200) points out that the younger African officers no longer make such efforts: "The compulsive force that characterized colonial administration and made the hub-and-wheel system work is now found only among the older, colonially trained officers."

Civil Servants vs. Advisors

The agricultural specialist in an African service delivery system is first and foremost *a field officer*, not a farm advisor. Almost all staff hired by the various public and parastatal agencies engaged in agricultural services behave as *civil servants*. They do things relating to agriculture on assignment (the exception being, perhaps, officials lucky enough to qualify for a research posting). Our example makes it clear that the role expectations pertaining to civil service behavior are quite distinct from what one might expect in advisory behavior. A government servant succeeds in relation to his superiors; an advisor, in relation to his clients. In his civil service role the field officer can carry out directives—even unpopular ones—with relative impunity. An advisor could only take such actions if he had first won his influence with those he serves. At the contact level, then, a bureaucratic "custodial" role predominates over the instrumental, problem-resolving behavior we often envisage as con-

stituting the core of the field worker's job.

A Systems Approach to Production Services

Imagine for a moment you have been given the job the Scandinavian experts faced in reorganizing the Cotton Board's extension program. How might you proceed? *First*, it does seem that a project framework is not the way to begin. The board already exists, it has its own staff and an operational commitment to expanding the cotton acreage. The experts are present only temporarily. Their task in this instance is viewed as devising intervention at two levels: a review based on field investigation to determine what strategies the board should use in approaching farmers, and a strategy for working with the board to incorporate these changes into its internal structure and operations.*

Second, the analysis must deal with the whole service delivery organization for cotton. To recommend only changes which involve contact staff would leave untouched the headquarters unit's tendency to make basic planning errors, such as recommending liquid insecticides in a dry environment or contracting for unnecessary tractor ploughing on the behalf of field units. Also it would not solve the fundamental question of how each level relates to the next—do we really need five untrained junior assistants with their bicycles if the Cotton Officer is giving the technical advice himself and if they rely on him for transport? And what about the issue of the homogeneity of the cadre, will the young man who succeeds the Cotton Officer and stays in the office writing long reports respond in the same way to recommended changes? How does one counteract a headquarters tendency to undervalue the skills and abilities of older officers who lack university degrees but more than compensate by their detailed knowledge of farming systems and the farmers? These are all structural issues. They cannot be answered in isolation of each other. One may not have a mandate to reform the entire system but one must consider it in totality while weighing the likely effect of various interventions.

Third, we cannot ignore the client system. The role of cotton within local farming systems must be known, not only to the analyst but also on a continuous monitoring basis within the board's field organization. What kind of crop intelligence system is feasible, given that the board was already failing to use the insights of its own field officers? How tight are the cost margins within which the service must be financed? What are the competing demands farmers face: (a) in terms of availability of cash and labor over the season, (b) in terms of the attractiveness of rival crops, and (c) in terms of other agencies active in the locale? Is it possible that cotton represents a bad cash crop for marginal smallholders on drier lands? If so, where should the board concentrate and how should it reach this decision? Obviously, this perspective requires the creation of reactive intelligence within the field organization (see chapter two).

Fourth, the analysts must possess a detailed knowledge of the crop and its requirements. They cannot presume they will always be told the necessary technical information, e.g., that traditional food crops harbor the same pests and thereby greatly decrease the effectiveness of insecticides and the burning of crop residues. They need the ability to spot problems in the field which the board may have missed, such as the difficulty peasants have in storing, grading, and keeping clean their cotton once it has been picked. In short, there is an irreducible technical minimum which an agricultural management advisor must posses.

Fifth, the contact/client interface, already discussed, will need close attention. The case example shows that cotton is not popular and that contact staff lack transport and motivation. Why are farmers growing the crop at all? Who is weeding and picking this labor intensive crop? Why does the Cotton Officer speak only to men? These various subtleties of gatekeeping and queuing must become clear to the analyst. We should expect they will vary according to the extension worker, his resources, the suitability and profitability of the crop, the style of community leadership, and general features of the social environment.

An analysis of the class system will be required. Who gets his fields ploughed by tractor, and who is excused from paying loan arrears? One might also draw samples of the staff regarded as most and least effective—as Harrison (1969) did in his Nigerian study—and analyze their work routines. The perceived rewards and sanctions need to be documented, both within the service and among farmers. Most important, one will want if possible to look across the fence at the same variables within other service delivery systems, to establish what is a reasonable expectation within a given environment. These methodological innovations were all employed by Harrison which gives his Nigerian study, alongside Leonard's in Kenya (1977), particular significance for our topic.

Sixth, we should be prepared to find that individual techniques such as USAID's "result demonstrations" and the World Bank's project planning may not have much to offer. Having accompanied many field visits like the one described, I tend towards the opinion that struc-

*See our discussion in chapter one of intervention strategies, and particularly the United Nations publication *Appraising Administrative Capability for Development* (1969); H. Hornstein et al., (eds.) (1971) *Social Intervention*, New York: The Free Press; R. Golembiewski and W. Eddy (1978) *Organizational Development in Public Administration*, Part 2, *Public Sector Applications...*, New York: Marcel Dekker; and D. Gillespie and D. Mileti (1979) *Technostructures and Interorganizational Relations*, Lexington, Mass.: D.C. Heath.

tural problems predominate over procedural weaknesses as the first priority to tackle in reforming service delivery systems. It would be difficult to point to any one approach which would have greatly increased our Cotton Officer's effectiveness. Techniques are sales devices that give the expert his bread-and-butter, but one would be wise to avoid presuming that they will make dramatic (or even *measurable*) difference in LDC contexts.

Seventh, one should treat ready-made quantitative data (staffing ratios, acreages planted, profits per farmer, etc.) with considerable caution until one has acquired a multidimensional viewpoint and has seen firsthand how statistical data are derived (Trend 1978). Good managerial analysis seems to be in very short supply, probably because it requires an insider's understanding of the type of system being investigated. A field analysis of a service delivery system will usually require three specialists, focussing on management, agronomy, and social aspects. If the headquarters organization is also included, an economist will be needed to talk to their economists. This implies a team effort, with its attendant dangers and stresses. For two excellent studies that illustrate how these problems can be overcome, see O'Connor (1980) on Afghanistan's health delivery system, and the Stanford Food Research study on African agricultural change (Anthony et al., 1979).

C. General Administration of Rural Communities

A major issue is whether the state should try to play more than merely a supportive role. Should the general administration attempt to coordinate development activities directly—for example by means of local and district committees—or perhaps even to assume executive responsibility, e.g., by running a district development corporation? The answer one gets is a fairly sensitive barometer of the ambitiousness of the state: a low involvement under some capitalist regimes becomes greater in a mixed economy and may become substantial under some socialist regimes. "Coordination" is a splendid term, much used in bureaucracies. It implies that activities are being intermeshed without anyone needing to give up power. In practice, there are many candidates to do the coordinating but few clients asking to be coordinated. Our question is: should agricultural service delivery systems be one of the clients, and is the general administration the best instrumentality for accomplishing effective coordination?

The Quest for Coordination

We note immediately that a parastatal production agency of the type discussed above (the KTDA, etc.) is first and foremost a coordinating structure based on a linkage of crop activities in sequence. Most governments recognize this fact by exempting such agencies from the purview of other coordinating structures they may establish.

Analytically, "coordination" is akin to the "cross function" linkage which Weitz (1971) identifies as the central purpose of regional planning. Coordination can be sought from several different aims or frames of reference:

1) To fit the particular needs and resources of a territorial unit (community, district, or zone), as in area-based planning
2) To trim commitments when functions draw upon common finances which are inadequate for the total proposed, as in economic planning
3) To connect activities when the desired output depends on more than one function, as in integrated rural development
4) To make functional units responsive to needs and desires of the people in an area, as in popular participation.

The same basket of functional activities can receive quite different trimming, depending on which frame is applied as the principal guide for determining adjustments. It is not uncommon that one reason is proclaimed as the rationale—"let the people have the say"—while structures and procedures are established to serve another framework and embody different premises. Economists have gained substantial power in resource allocation through the fact that structures established for any of the other three reasons can become primarily economic in focus. In comparison to the powerfully developed technologies for investment appraisal, the procedures for area planning, integrated rural development, or popular participation are less standardized, less known, and less convincing.

Arrangements vs. Effects

It is useful to distinguish between coordinating *structures* and coordinating *means*. The structures most often fall within three broad types: committee or council structures, usually replicating the administrative hierarchy (village, division, district); a clustering of all rural development functions into one overarching Ministry of Rural Development; or a separation of rural development components into an organizationally distinct integrated rural development *program à la* the World Bank's recent approaches). If designed from above, such structures are sometimes erected with little thought to the details which are addressed in this book.

As examples of what to avoid, let me describe briefly two cases from field administration in Tanzania. The first

concerns the Masai Range Commission, a body established in the late 1960s to coordinate land use and range planning. The enabling legislation specified that the commission should be a tripartite body representing the district administration, range technicians, and stock owners (the Act closely followed recommendations given by an outside consultant). This seemingly sensible structure nevertheless contradicted a whole bundle of premises which Tanzanian officials share about how "proper" representation should occur. Their system is based on the implicit premises that: the party representatives take first place, the region antecedes the district (the regional commissioner was not even an ex officio member of the proposed Range Commission), functional heads never sit as equals with the district head, but rather are called in to *implement* policies; and livestock owners should be represented through their territorial hierarchy and not directly. What appeared as a "neutral" body to an outside consultant was in the Tanzanian context highly controversial. It never did operate effectively. We finally resolved the contradictions by making the commission a special sitting of the district's planning committee meeting with an expanded membership. In this form it became acceptable to regional officials.

Unintended Effects of Complicated Structures

Throughout the less Westernized parts of Africa, it is my observation that supervisory boards and other overlapping structures of like nature are especially problematic. The root difficulty can be traced to implicit ideas about authority, which is seen as being undivided and hierarchical in nature. The higher must control the lower. The concept of a policy-making body which does not at the same time intervene in day-to-day management seems foreign. As a consequence, supervisory structures either usurp the role of the executive, or they fail. This explains why public corporations in Africa—whether these be cooperatives, district development corporations, crop boards, or parastatal companies—so often get into trouble. It also indicates that the design of coordinating or supervisory bodies is fraught with many complexities that the outsider will not comprehend.

Our second example is the complex structure from decentralized administration which Tanzania established in 1972, described also in Malhotra (1978). Again the basic structure was recommended by outside consultants, this time working for a prominent multinational managerial firm. Direct financial, planning, and coordinating powers were given to the region (or province) and below it to the district, whose respective heads became known as Regional and District Development Directors. However the earlier and separate offices of Regional and Area Commissioners (who serve as party secretaries at their respective levels) were retained. In addition there were party chairmen who presided over the forum which had final say on all programs at each level. A team of staff officers (originally personnel, planning, and finance) was added to assist each director, with the "functional heads" of the traditional departments coming under the District or Regional Planning Officer. Thus the District Agricultural Officer was not supposed to communicate directly on policy matters with his regional head, but instead to route communications through the Development Director's Office.

As should have been anticipated, the revised structure proved very cumbersome. Having funds come directly from the region instead of the capital city was a decided gain, but it was offset by the much lengthened decision-review process. At the district level, for instance, all important matters would first be hammered out at a meeting of the functional heads chaired by the Development Director; then reviewed by a full meeting of the district authorities (the functional heads again present) chaired by the Area Commissioner; and finally approved by a party forum under the charge of the District Party Chairman. Over half the members of each meeting were the same. It almost appeared as if the duplication of coordinating structures existed primarily to validate the office of each of the chairmen. But in each session the chairman was wont to seize upon certain details, and whichever programs had the bad luck to appear early in the agenda became the casualties. Having defended his proposals three times in succession at the district level (one soon learned to avoid mentioning the details of anything technical) a functional head would then face the same three-stage sequence of review at the regional level!

Similar difficulties have plagued other coordinating structures one reads about in the literature, such as giant Ministries of Rural Development, or the block development programs implemented in India. For example, Berkoff and Adams in a review of the ILO report (1976) on the Sudan note it recommends creation of a new Ministry of Rural Development *alongside* the Ministry of Agriculture, while not mentioning earlier failures in setting up rural development ministries within the Sudan (Berkoff and Adams 1979:196). Having a senior rural development officer posted to each province, with his own staff and regulatory powers over all agricultural sector activities, is a recipe for intensified bureaucratic conflict of the kind we found so enervating in the Tanzanian administration. (Incidentally, it does seem that socialist regimes are especially prone to creating structures that generate internal conflict.)

Costs of Coordination

Robert Chambers has at various times emphasized that coordination is by no means costless. Analysts often treat it as a disembodied function which magically resolves conflicts and improves efficiency. Quite to the

contrary, in a poor country each meeting of section or district heads will involve disrupted schedules (at the height of the planting season in those African nations whose financial year starts in July) and fuel costs paid in foreign exchange. As Chambers stresses, staff time has its opportunity cost (1973:27):

> Co-ordination is liable to mean meetings, staff sitting through discussions which do not concern them, and in its more pathological forms listening to speeches, failing to make decisions, hiding from responsibility for inactivity behind a group consensus, and agreeing on technically poor programmes.

Genuine coordination means that real world activities are subjected to delays, changed scheduling, reduced funding, modified design, and diverted equipment. As it happens, actions of this nature can be particularly damaging within agricultural service delivery systems subject to periods of peak demand and numerous technical considerations. On many occasions in Africa I have sat through meetings where vital technical considerations were overridden, with the effect that investments undertaken in a modified form were largely wasted (e.g., the building of acaricide dips in areas free of ticks, the location of a meat packing plant far from the zone of livestock production, the driving of heavy duty equipment fifty miles over rough terrain to service a small plot, and so forth). Agricultural technicians soon learn that calls for "greater coordination" tend to be directed towards those departments which have a modicum of transport and equipment. One danger lies in the fact that when agricultural units regularly assist other departments, they begin to expect support in return. Pushed far enough, this pattern of reciprocity diverts these units from attention to their own longer term aims and obligations. To use the language we employed earlier, the proximate rationality achieved by coordination (externalized costs, in reality) can, over the longer run, camouflage the true sources of system inadequacy.

There are structural reasons why requests for help tend to focus on the agricultural services. Many smaller ministries or specialized functions may never reach the village at all, being content if they have a representative at the district level. In parts of Africa and Asia where extension services are well established, agricultural technicians will often be found at points lower in the hierarchy than in other ministries. Furthermore, to carry out field assignments the agricultural services usually require transport and field equipment. Because the work load fluctuates seasonally, there will be extended periods when these resources appear "idle". The agricultural technician may be the best trained person at his level, but he will probably occupy a relatively low rank—e.g., being designated divisional or sub-district instead of district officer. In meetings involving all district staff, other ministries will have staff with less technical competence but higher rank than the agricultural technician. They are thus able to commandeer resources under any type of pooling arrangement.

The means for exercising coordination vary in degree. Coordination may mean simply that departments inform each other about movements and plans, so that duplication is minimized and travel can sometimes be shared. Tighter integration may result from central approval, where each month's or quarter's program is subject to common review or approval by the administrative or political head at a given territorial level. Finally, under "decentralization" the resources themselves—vehicles, manpower, and finance—may be vested in the coordinating unit, leaving the field agencies without independent decision-making power. Whether a loose or tight coupling between organizations is desirable within the inter-agency environment has been the object of debate in the managerial literature (Aldrich 1977, Whetten 1977).

Participation: Bringing the People into the System

There remains the problem of how one can best involve the people in offering a development service. The literature on participation is substantial; for general sources see Booth and Seligson (1978), Bryant and White (1980), Cohen and Uphoff (1977), Esman (1978), Huntington (1976), Johns and Riley (1975), Montgomery and Esman (1971), Nash et al., (1976), Pitt (1976), Uphoff and Esman (1974), and Verba et al., (1978). Case studies in our bibliography include Kramer (1969) on the US; Poitras (1973) on Mexico; Charlick (1974) on the Hausa and Beer (1976) on Nigeria; Boesen et al., (1978) and Hyden (1980) on Tanzania; Leys (1974) on Kenya; Ollawa (1979) on Zambia; and Picard (1979) and Vengroff (1974) on Botswana.

One standard answer is to create a representative committee. This may be simply an advisory group subsidiary to the organization—e.g., the District Tea Grower's Committee of the KTDA, which decides on the allocation of production quotas and thus the trade-off between expanding membership or expanding acreages. More commonly it will be a village council linked to the administrative hierarchy, e.g., the Panchayati Raj in India. The KTDA Committee is preferred by technical agencies, as it has no life of its own and can act only on issues presented to it by the Tea Authority. For the same reason its value as a representative organ, making the authority responsive to growers, is minimal.

The Panchayati Raj structure in India is much the best documented attempt to unify development and representational functions within a single hierarchy of territorially-based councils. Franda's excellent account (1979:116-146) should be supplemented by reference to Mayer (1958), Valsan (1970), Hanson (1966) and Khan

(1978) on the earlier community development phase. For the Panchayati Raj phase see Hunter (1970), Hunter and Bottrall (1974), Mathur (1978), Mellor et al., (1968), Shiviah (1978), and Shukla (1978). The intensive agricultural district program (IADP) which was an outgrowth is covered in Mohan and Evenson (1975), and the green revolution in Dasgupta (1977) and Day and Singh (1977). For an overview of Indian history during this period see Frankel (1979), and for the effect on extension programs see Benor and Harrison (1977). Other sources include Dubey (1972), Juneja (1973), Maddick (1970), Montogomery (1979), Nicholson (1973), Reddy (1974), Reddy (1977), and Tummala (1979). As phrased by Montgomery, the underlying question is whether a popular front of elected village representatives can substitute for the usual bureaucratic hierarchy of development agencies.

India's Panchayati Raj councils grew out of the Community Development Program of the mid-1950s. The original intent was to concentrate outside aid for a three to five year period in selected "blocks" of up to 100 villages and perhaps 100,000 people. A team of specialists under a block development officer (BDO) would be furnished. Contact with villagers was through multi-purpose Village Level Workers (VLWs or *gramsevaks* as they were termed) who were to serve as the link between villagers and technical departments. Almost at once, of course, every state demanded its blocks. The VLWs became deluged with requests they had neither training, equipment, nor finances to meet (Franda 1979:116-118). A review committee under Balwantri Mehta in 1958 proposed to regularize the situation by creating a three-tiered structure based on indirect elections at the block and district levels from village councils, whose directly elected members would serve five years (or less in some states). At the district level an executive body (the Samithi) would process requests from the lower levels subject to review by a funding body (the Parishad) chaired by the District Collector (roughly equivalent to a District Governor). Since local government is a matter given to the states under the Indian constitution, considerable variation exists in how different states have implemented the Mehta proposals. Only fifteen of the twenty-two states retain the three-tier structure (1979:119). According to Tummala (1979:149) there are now over 212,000 Panchayats covering 98 percent of India's villages. But the program has become highly political, and it seems that elite groups at the local level have captured the Panchayats (Franda 1979:144).

In regard to technical matters, placing generalist block officers over technicians caused so much conflict that the arrangement was modified in the Intensive Agricultural District Programme (Hunter 1970:92-94). It is generally conceded that having a VLW as the linking person has not been particularly successful. Thus the problem how to best coordinate activities of the technical departments remains unsolved (Hunter and Bottrall 1974:37). The farm visit system evolved by Daniel Benor for the World Bank represents a return to the earlier concept of extension agencies which supervise their own workers and carry out their own field programs. See Benor and Harrison (1977).

In regard to participation we now see more clearly that relying on elected representatives presumes there is an articulation of a common interest within local communities. Western political institutions are based on this assumption; for ideological reasons analysts view it as being automatically effective (Tapia-Videla 1976). In actual fact the nurturance of common interest may be defective, and the committees may represent instead the special interests of their members. Again and again supposedly representative institutions are captured by local elites and distorted to serve private needs—a tendency which is reinforced under the conditions of acute scarcity such as one sees at the village level in India (Weiner 1962).

The distinction between structures and effects applies to representative institutions. Structures can acquire ideological legitimacy that is not matched by their actual achievements; alternatively, the bureaucracy may impose procedural restrictions which insulate national agencies from local pressures. "Capture" can occur in multiple directions. Hyden in Barkan and Okumu (1979:110) points out that in Kenya the bureaucracy has become captured by members' private interests, while in Tanzania it has become subservient to the party's views. More recently (1980), he analyzes how the Tanzanian administration has failed to capture the peasantry, even though structures which are supposed to link villages to the nation do exist. Representative institutions are not inherently viable means to enlarged participation. Perhaps we should consider other administrative devices to perform this role. On the whole, the task of making development agencies and the general administration more responsive to local needs remains at the top of the agenda for further research, analysis, and experimentation.

CHAPTER SIX

Functional Fields of Project Activity

Agrarian Reform

Water Development

Natural Resources Development

Agricultural Research

Crop Development

Livestock Development

Agricultural Extension

Farm Credit

Women in Development

The literature on rural development lacks sustained focus at the middle levels of generality, where comparisons among projects might lead to a consolidation of practical experience. There are broad discussions of national strategy, made still more abstract by econometric terminology (factor proportions, bimodal vs. unimodal strategies, etc.), and there are case studies of individual projects. Even at these extremes the materials are thinner than at first appears. We do not get direct reviews of the activities, processes, and institutions involved in rural development, but rather *interpretations* framed in paradigms that are not principally concerned with rural development as such.

There has not been much serious comparative inquiry into, say, regional experience with specific technical functions such as farm credit or range management. Such work is not easy. The case materials are spotty in coverage, and the academic paradigms lack specificity in the vital middle ranges of scale.

By failing to study project types (or functional categories) academic analysis does not address important real life problems of field programs. As a result, certain significant lessons are lost. This loss must be one of the more serious omissions of international technical assistance. An example of the kind of creative synthesis which is needed is the work of Kline and associates on agricultural mechanization in Africa (1969). Another welcome step ... the right direction has been the establishment by the Overseas Development Institute of "networks" for the exchange of field experience among practitioners and academics concerned with major program types, an exchange whose results are summarized in Hunter (1978).

As a start towards consolidating experience, this chapter examines several major functional categories or types of projects to identify their characteristic problems and the administrative requisites these imply. These general types of projects are:

- *Agrarian Reform*
- *Water Resource Development*
- *Natural Resources Development*
- *Agricultural Research*
- *Crop Development*
- *Livestock Development*
- *Extension Services*
- *Agricultural Credit*
- *Women in Development*

Each functional field possesses certain commonalities. These areas invite the comparative analysis of experience, and the production of lessons about the conditions which must exist, or which must be established, in order for particular functions to contribute to the larger aims of rural development. The lessons we have so far learned, and the indications which bear the weight of available evidence, are summed for each category. Much remains to be learned.

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A. Agrarian Reform

More has probably been written about agrarian reform—a generic term covering all types of land tenure modification—than any other category of rural development. The basic reference by King (1977:14-24) identifies five distinct emphases: land redistribution, tenancy reform, land tax reform, consolidation, and colonization schemes.

Other frequently cited sources of a general nature include: Dorner (1972), Lehmann (1974), McEntire and Agostini (1970), Parsons et al. (1956), Tai (1974), Tuma (1965), and the World Bank (1975). Administrative issues are discussed by Montgomery (1972), and covered exhaustively in an excellent bibliography by West (1975). Regional bibliographies are published by the Land Tenure Center at Wisconsin. For an introduction to the Latin American situation, see Feder (1971) and Barraclough (1973), also the Land Tenure Center (1974). There is Seligson (1979) on Costa Rica, and a good coverage of Brazil in Cline (1970), Cehelsky (1979), and Kluck (1979) supplemented by Forman (1975). For Africa, Ellis (1980) discusses a USAID-backed proposal that never happened, but the main interest is on Kenya. See Sorrenson (1967), Okoth-Ogendo (1976), and Coldham (1979). India's very hesitant efforts in this direction can be measured against actual needs as documented by Menchir (1978), and Saghir (1977); for comparable materials on Bangladesh, see Smith (1975) and Jannuzi and Peach (1980). For Southeast Asia see Lin (1976) on Thailand, and Krinks (1974) and Kikuchi and Hayami (1980) on the Philippines. Contrasting cases from East Asia are Moise (1976) on North Vietnam and Fuchs (1980) on Taiwan. Obviously, these are but a cross-section of recent material out of several hundred potential case studies.

Land Tenure Reform

The need for tenure reform can arise from a variety of situations. In Africa it emerges spontaneously wherever rapid monetization has occured. Under reciprocally-based exchange systems land usually did not enter the market and use-rights were controlled by kin groups. When land does begin to enter the market, we have a potential "land rush" situation with its syndrome of sometimes feverish acquisition by those astute enough to see that the rules of the game have changed. Later those who were abruptly disadvantaged of their most basic claims to a livelihood may seek redress. Tenure reform then becomes attractive to a regime seeking to broaden its popularity. A second context occurs at a later stage of economic development, when through inheritance and subdivision individual holdings may become extremely fragmented. Here the aim of reforms can be expressed as consolidation, so that farms can be managed as units once again. It may also be the intent to establish a certain minimum size of holding, and to encourage the use of land titles as collateral for bank loans—cf. the original aims of land reform in central Kenya as described by Sorrenson (1967). A third context is provided when semi-feudal systems of land holding enter the commercial economy, e.g., US sharecroppers or the Latin American hacienda.

But "reform" can go in either direction: sometimes land owners use clarified legal status to dispossess tenant farmers who have occupied their homesteads for generations but lack legal title. Alternatively, reformist and revolutionary regimes may seek to devolve legal ownership from the feudal landlord to tenants (the *ejido* program in Mexico following the revolution). What at a minimum all these initiatives share is the desire to move land transactions out of complex usufruct tenurial arrangements (often of a basically social nature) into a modern legal context whose rights and controls are congruent with commercial activity.

This helps to explain why land tenure reform can backfire. It may open up economic resources to peasants who as tenants or squatters were denied full rights over their land—the equity motive favored by reformers. Or it may be used by commercial interests to polarize peasants into farm laborers (those formerly sharecroppers or squatters) and a separate class of smallholders. The intent then may be to let "market forces" eliminate the "inefficient operators" (never mind the factor of high risk) so that "better" farmers will gradually buy out the others and enlarge their holdings—the specialization motive favored by technocrats. Because they agree change is needed, reformers and technocrats do not always realize they may be heading in different directions.

A land reform program can have the second consequence even when the first was intended. As we have seen, tropical farming tends to be quite risky. Once banks begin to accept land titles as collateral for agricultural loans they acquire the means to transfer land to the larger operators, who survive not necessarily because of better management (as claimed by the technocrats) but rather because of their larger cushion in an adverse season. Peasant farmers who have long enjoyed social claims to continued livelihood from their holdings may not understand their enhanced vulnerability once tenure has been "reformed". While land reform will be opposed by the more traditional aristocratic families, sometimes an emergent middle class supports it precisely as a way to gradually disposses the smallholders. Feder argues (1971) that in much of Latin America "reform" has meant in practice the *disenfranchisement* of the very people it was supposed to benefit. In extreme instances, entire minority groups will be disenfranchized en masse during or immediately after the reform exercise, as has happened when certain US Indian reservations were terminated—see Lurie (1972) on the Menominee—and Shelton (1977) on the plight of Brazilian Indians.

Political intent is a key factor influencing the direction a reform program will take. Even when intentions are pure

land reform is problematic as an approach to rural development. It makes farm resources more accessible, but this by itself is merely a first step. All the other investments are still necessary: crop development, transport, extension, input supply, and marketing. As a consequence, benefits will usually be slow to materialize. There is also the question of the stage of evolution in the larger system: land reform is far easier if implemented *early*, before farmers build expensive houses or plant tree crops. And it assumes that a strong administrative presence can be established and maintained at the local level.

The Administrative Necessities

Economic arguments sometimes obscure the crucial role of administrative capability as a factor influencing success. The initial problem is how to determine, measure, record, and protect boundaries. Cadastral survey* in an LDC is an expensive, slow and demanding process—especially if it concerns scattered parcels of land of irregular shape. But in many legal systems only a cadastral survey is deemed sufficient to protect claims against future litigation. If in addition the aim is to consolidate small pieces into larger, more integrated holdings, the difficulties are magnified. Rapid demarcation will be accompanied almost certainly by new injustices inflicted during the transfer exercise. The authority carrying out the land reform needs capable and incorruptible field staff. It must have access to local information about the holdings being dealt with, opening the door to manipulation by local interests. Routine procedural decisions will greatly affect the welfare of various groups not in a position to press their claims, including: absentee owners, women and minors, long established squatters, "landless" families, and non-citizen residents. We should also anticipate that the commons may be much reduced or even eliminated in the demarcation process, and that the loss of such use rights will generally affect the poor more than the rich.

There are administrative tactics which, while controversial, can reduce the social costs of land reform. *First*, if farmers will agree to the planting and protection of boundary trees, reasonably secure claims can be established, based on aerial photographs and narrative description without recourse to the cadastral survey of every plot. (However this immensely simplifying device does assume that courts and community sentiment will uphold claims established in this manner, a dangerous presumption in some settings.) *Second*, there are recent methods of electronic survey which can greatly speed the mapping process. *Third*, one should insist in the tropics that landless households be included, perhaps by giving each a houseplot of, say, half a hectare. Separate rules should probably be devised to protect those whose only holding consists of their houseplot. *Fourth*, care should be taken to protect common facilities (marketplaces, schools, springs, quarries, etc.) and to anticipate future needs (rights of access and the location of future roads). *Fifth*, long established rights of use (usufruct) should be treated as tantamount to possession. *Sixth*, recognition should be given to the non-market nature of many traditional "rents" within semi-feudal systems, so that compensation is reasonably fair to all concerned. And, *last*, some incentive to encourage rapid settlement of claims should be built into the adjudication process, or those losing power will stretch out the proceedings indefinitely.

Land reform means some rights are being extinguished: there will be losers. If the losers happen to be absent American or European landlords holding primarily speculative claims, the reprecussions within the system may be minor. But if they are powerful groups within the nation, they will exert every influence they can to modify, delay, or even countermand the reform program. This in turn generates enormous pressures for the land reform agency, whose integrity must be substantial if a program is to be carried through as intended. An apparently "technical" problem such as the slowness of completing surveys may encourage efforts to reverse or modify adjudicated claims.

The same degree of competence needed in carrying out land reform is required in maintaining the plot register. Within many LDC's the systems of public record keeping at the local level will be in disarray. Births and deaths are not accurately recorded, and there are many sources of confusion affecting the determination of ownership. Where land taxes are charged, peasants have good reason to lie about their holdings. Sometimes many families in a community share the same surname. Women may fear being dispossessed, and thus fail to record the death of a spouse. Social customs concerning inheritance may differ from those embodied in state law. Unless a large administrative effort is devoted to maintaining land registers, within a few decades the same problems which necessitated land reform in the first place may reappear—see the current accounts of land registration in Kenya given by Okoth-Ogendo (1976) and Coldham (1979).

B. Water Development

1) Household Supplies

Few resources are more universally important and less understood than water. Some countries are headed for situations of stringent water use regulation for which their present attitudes and administrative institutions are ill-prepared. At the local level, administrators often make decisions that influence water use. They should anticipate that water-related issues will assume increasing importance in the decades to come. Happily, the issues are clear and the literature is good.

*A survey of the extent, value and ownership of land.

Ambroggi (1980) gives an introduction to the topic, supplemented by Jackson (1977) on tropical climates and Pereira (1973) on the interactions between land use and water management. White et al. (1972) provide an excellent study of problems of household water supply in East Africa. One of the better World Bank volumes (1973) inventories the environmental and health aspects, Saunders and Warford (1976) cover the economics, Utton and Teclaff (1978) general management and Vlachos (1973) the transfer of water resources knowledge. The proceedings of two conferences - Ackerman et al. (1973) and Biswas (1978) - furnish a wealth of detailed material, as does also the large literature on man-made dams itemized in chapter four.

Irrigation constitutes a separate topic with its own literature. Apart from irrigation, water development projects span a very wide range, from tiny, single-pump installations to gigantic dams. All involve civil engineers, but the scale of projects a technician has worked on previously will strongly condition his suitability in a particular assignment. Because water is physically subject to the same laws everywhere, water engineers are especially prone to assume that theirs is a universal science - to be transferred, not adapted. But water as a vehicle is highly affected by environmental considerations - ambient temperatures, sediment loads, supply fluctuations, public health dangers, etc. - so that one wants to be very careful the water engineer has relevant experience.

At the village level the field administrator soon discovers that better water - more of it, a reliable supply, and one that is safe - is probably the single most desired outcome of development. And the most frequently promised improvement, by national politicians who will try not to return to the sites where promises have been made. (In my Embu district farm surveys in Kenya I found almost everybody had heard of the progressive farmer whom the minister promised would get a water supply, oblivious to the fact that the farmer lived at the top of a three hundred foot ridge.)

Everywhere in the tropics water is a major agency for the spread of parasitic and bacterial diseases: cholera, malaria, typhoid, schistosomiasis, river blindness, etc. Owen (1973) gives a good review of the increased public health risks that accompany agricultural development in forest zones; many of them are water-linked. Carrying water in the dry season is a major consideration of local life - in the cash budgets of those affluent enough to hire shoulder-transported water, but more commonly in the woman's time allocation - see White et al. (1972) for actual figures. At the short end of supply, demand is inc[illegible] - if people and their animals cannot obtain their daily minimums they will have to migrate or die.

Temperate zone advisors are often unprepared for the extreme fluctuations in tropical water supply. Even major rivers go dry on occasion. The reason is the increased evaporation when rains come in thundershowers and the air is hot. Runoff fluctuations are accentuated when rising human and animal populations cause deterioration in land-use. To conserve water in the tropics one holds back the runoff in every way possible (the season's surplus in the drier areas typically comes from only three or four storms), minimizing soil erosion, augmenting storage in surface ponds- "tanks" as they are termed in Asia—and extending the period of groundwater recharge. Trees use up water by returning moisture to the atmosphere, but it seems they have a key role in expanding the temporary retention of water from peak storms (Jackson 1977:133 and Pereira 1973:107).

Large water projects may not impinge on the general administration because they are usually under their own agency or ministry. It is village level supplies which cause most difficulty. These are often seasonally constrained unless people are lucky enough to live beside a major river or lake. But administrators (and planners) have not become used to thinking of a seasonal water *budget* which must be *managed*. Water is markedly subject to queuing mechanisms. Some uses not only diminish supply but pollute or otherwise change its characteristics (timing of flow, etc.) for downstream consumers. We should recognize that traditional human consumption requires perhaps the least amounts per person; then comes use for cattle, needing perhaps five times as much; then consumption in water-borne sanitation; then irrigation uses; and finally industrial processes which are very heavy users because of water's role in cooling and in transporting wastes. In a developing country treated water is a luxury, expensive to produce and difficult to maintain, a scarce commodity which gets mainly flushed down toilets and used to transport industrial pollutants back into downstream villages. (The pollution problem is exacerbated by dry spells when there is insufficient surface flow to disperse the pollutants.)

Any installation which impedes flow is a potential source of conflict. A shrewd village mechanic can arrange that most of the water goes down the pipe to the school instead of flowing into the cattle troughs. Using water for irrigation - often by hose around the houses of the elite - is extraordinarily expensive in comparison to traditional uses. The ease of delivery encourages waste, and a small patch of porous volcanic or sandy soil can soak up enough water to serve a whole village. These issues surface in times of drought, when available water may be far less than the amount assumed when water rights were allocated. Farmers will angrily wave their allotment certificates in administrators' faces, when in truth the entire water budget may be oversubscribed in the dry years. The legal mechanisms which are supposed to resolve such conflicts then become part of the problem.

If an area is experiencing water shortages in dry years, caution is necessary when adding further development projects. The benefit cost technology used to select pro-

jects commonly ignores their consumption implications. Furthermore, modernization greatly increases household consumption because piped supplies make water use much easier. Experiences of this nature explain why communities often request the government to expand available water supplies. The choice then revolves around whether to choose high, intermediate, or low technology alternatives.

Advocates of "appropriate technology" will insist that the people can by their own efforts build shallow wells to augment the supply. But such sources are highly susceptible to contamination and have a nasty propensity to go dry just when people need water the most. At the high technology end, a donor agency's drilling advisor will insist nobody has yet drilled a well to three thousand feet in the locality, and there may be a huge sub-surface aquafer awaiting utilization. About three years after the drilling project has been disbanded and its commodities dispersed, the pumping unit breaks down and an administrator faces six months of negotiation with the central bank to obtain an import permit for spare parts. Meanwhile the water hauled by tanker each day to the village will be paid for quite literally in foreign exchange.

Because access to water is a daily essential, the maintenance of supplies is a perpetual problem in the poorer and more remote villages. Gravity-fed pipelines from a secure source are the ideal, but in most countries such supplies have been fully exploited. Dams carry high health risks, must have their watersheds protected (which in turn implies a high degree of control over land use), and will fail either if there are floods or if no rain is received for two seasons in a row. All the other types of supply involve lifting water, and hence the technology of pumps, windmills, water rams, etc. In most cases the technology is not especially complicated. But the need to make repairs quickly imposes demands. Again and again the water engineers come to make a village installation, but leave without insuring that the village has a viable organization to monitor and maintain its new supply. Even the low technology alternatives assume a labor input by villagers for cleaning and making repairs, an unpopular task the people frequently neglect.

2) Irrigation Schemes

Using water for crop irrigation is one of the most expensive forms of agricultural development, and yet paradoxically one of the most popular. A good starting reference on this topic is Bromley et al. (1980), followed by Bergmann (1973) on economic appraisal, Hariss (1976) and Kalshoven (1976) on irrigation bureaucracy, Clyma et al. (1978) on the planning system, and Hunt and Hunt (1976) on traditional systems.

Because of the key importance of irrigation in flood rice production, irrigation systems have been much more thoroughly studied in Asia than in Africa and Latin America. For a general overview of Asian irrigation see the papers in Lazaro et al. (1977), followed by Coward (1979) and Coward and Ahmed (1979) on Comilla in Bangladesh; Palmer (1979) on the Nemow Case from Indonesia; Radosevich (1975) on water user organizations in Pakistan; Vermeer (1977) on China; and IRRI (1973) and Hayami et al. (1978) on the Philippines. Cummings (1978) describes how a "green revolution" package linked to flood irrigation destroyed the traditional dry-rice economy of Vietnamese peasants. For Africa, we have Waterbury (1979) on Egypt; Gaitskell (1959) and Barnett (1977) on the Gezira in the Sudan; Chambers (1969) and Chambers and Moris (1973) on the Mwea scheme in Kenya; de Wilde (1967) on West African irrigation; and Roder (1965) on Zimbabwe. For Latin America see the cases in Nelson (1973) and Hall (1978) on the high opportunity costs of irrigation development in Northeast Brazil.

Irrigation is so expensive because it usually requires substantial site modification, earth moving, the leveling of fields, and the lining of channels and drains. The direct costs of earth moving are paid ultimately to OPEC (one wonders if mining machinery running off the power grid cannot be adapted for open field construction). They are only the first step in a chain of necessary investments. Having dispossessed indigenous cultivators (who these days are usually just as numerous as the new settlers who will later operate the scheme), the government must resettle them elsewhere while searching for viable irrigation crops: generally rice, cotton, and sugar cane. All the usual research, mechanization, transport, and marketing investments must be made *in addition* to the high initial cost of the scheme's physical works. To pay back its investments a government may then create a protected market for the main crop being produced on the scheme, offloading its costs onto consumers.

Irrigation schemes are typically designed by water engineers, analyzed by economists, and handed over to administrators to operate. Many features of the resulting socio-economic system are affected by the basic design, including: the location and size of houseplots, whether or not people can introduce livestock (requiring heavier bunds to withstand trampling damage), and the land left for non-irrigable plots, whose produce is often of key importance to household welfare. Clay soils retain water best, and their location will be the focus of the engineers' attention. Because of the cost factor designers may be most reluctant to leave adequate space for non-production amenities. They may also fail to anticipate the scope for combined production systems (e.g., trees, bananas, rice and fish) which greatly increase tenants' benefits. At a minimum the basic package should include a fast growing tree crop, as irrigation areas are usually chronically short of fuel. Household water supplies and sanitation are another serious problem, if the rapid spread of infectious diseases and parasites is to be avoided.

On Mwea in Kenya the sheer concentration of people

was a limiting factor, but technical decisions embodied in the scheme design could have been adjusted to greatly increase tenant welfare. See Chambers and Moris (1977). Any system of water delivery with gates and furrows becomes a zero-sum game for tenants, a queuing mechanism whose operation must be carefully regulated. Sometimes social rules are adopted among participants to randomize the distributional advantages of particular locations, so that a different village or farmer gets served first in each sequential period (week, month, season). On Mwea a rotation of tractors among villages to start the season was adopted as deliberate scheme policy.

Large-scale irrigation schemes are fairly high risk ventures with distinctive administrative problems. The government may insist on retaining land rights—hence the label "tenants" instead of farmers—and this in turn creates an attitude of dependency among the participants. Because irrigation is usually a seasonal activity tenants tend to invest profits in outside businesses and over time to become landlords themselves (though perhaps unofficially so). Large schemes often impose single channel marketing for the predominant crop and must thus police the black market which spontaneously emerges. In the larger society the scheme will appear as a privileged enclave with its own services, needs, and health risks different from those of surrounding areas. The scheme management is in a position to control the myths that are believed about tenant welfare, and may overstate benefits to justify the investment.

The risks of large-scale irrigation are compounded when a country asks for American, German or Korean advisors. Laser-levelled fields are cost-effective in systems where water carries a low sediment load, as are high volume electric pumps where the power is never interrupted. Almost invariably, US agronomists install electric grain dryers (the moisture content of grain critically affects how well it can be stored); Chandler (1979) does not even mention the solar alternative. Americans will encourage multiple cropping in each year to maximize output, relying on herbicides, fertilizers, and pesticides to forestall declining yields, weed growth, and disease outbreaks. These are all high risk strategies, perhaps suitable in the American West but out of place in an LDC. The older British and Dutch advisors with their cautious rules-of-thumb may have appeared less scientific but their advice was more appropriate.

The contrasts to other forms of rural development are less marked in societies where people have traditionally practised irrigation, or in systems based on overhead sprinkler technology. Irrigation has emerged many times in human history under various social systems, and there is little reason to believe that large schemes are the only or indeed the most effective approach. As water budgets emerge as constraints, attention is shifting from large projects which tend to be heavy users of water to smaller-scale systems. Preliminary research suggests that smallholders differ greatly in their knowledge of water management, but have considerable potential for making better use of this increasingly scarce resource. It may be that gigantic irrigation schemes along the lines of the Gezira in the Sudan will become relics of an age when energy was cheap and the water budgets undercommitted.

C. Natural Resources Development

Natural resources development is only rarely touched upon in accounts of rural development—how many discussions of agro forestry has the reader seen? Probably the reason is that the relevant interests are small marginal communities which lack power to make their case known, or the employees of companies presently harvesting the world's natural resources partly at the public's expense.

Controlling the Commons

The ideas needed to analyze natural resource development have been established as an outgrowth of the ecology movement of the 1970s. One should start with Hardin and Baden (1977), Eckholm (1976), Dasman and Freeman (1973) and Dorner and El-Shafie (1980). The basic reality is that any renewable resource which is a common good will be rapidly depleted when demand rises and harvesting technology improves before administrative mechanisms exist to put the resource on a sustained yield basis. The past four decades have seen an unparalleled improvement of harvesting technologies, evidenced in chain saws, strip-mining, sonar location of fish schools, factory ships, and even helicopter retrieval of timber. The resources being harvested are in most cases (excepting bamboo forest) replaceable at fixed and comparatively slow rates. Sometimes there are behavioral constraints, e.g., the failure of a species to reproduce when its numbers dwindle below a certain (usually unknown) level.

It is a flat-out race at the moment to see whether the firms involved in exploitation can get at the resources before governments begin to manage them effectively. Note the rush to enclose maritime resources. The distortions which cheap energy in the 1950s produced within the industrial nations—especially in America with its windowless schools and electric typewriters—are also evident in relation to timber resources and maritime fish stocks. The prodigious waste of paper in America reflects a failure of pricing mechanisms to protect the public good, the logical outgrowth of insensate free-market mechanisms allowed to operate in an inappropriate context. I say "inappropriate" advisedly, since the root problem arises because the cost of harvesting trees is so small a proportion of the unattributed total cost of producing a mature stand, in the same way that the cost of pumping petroleum should not be made the index of its economic worth.

In the meantime, we find a polarization between small

traditional groups—sustained yield loggers, Sri Lankan fisherfolk, the Ik people on their remote Ugandan mountain—and large-scale "factory" units which are only temporarily resident in any one place. The constraint limiting overexploitation in traditional systems was usually the inefficiency of harvesting technology: the impossibility of locating fish schools, the labor required to cut and move timber, the high death losses among calves. Minor technological improvements such as dynamite or fine mesh nylon nets can have devastating cummulative effects on the conservation of a resource base. These innovations benefit early adopters and spread rapidly. But the local community may have never evolved regulatory constraints and the danger will not be perceived until over-exploitation is advanced, a replay at the community level of tendencies evident on a world-wide basis.

The modernization of traditional fishing around the world presents all the usual dilemmas of rural development in microcosm, and constitutes an important body of little tapped empirical and organizational knowledge. Sources include Norr and Norr (1978), Prattis (1975), and Alexander (1975), supplemented by cases such as Miller and Van Maanen (1979) on New England, Chang (1971) on Japan, Moyer (1971) on the Eskimos, Abrahams (1970) on the West Indies, and McHenry (1976) on Tanzania. Here the interactions of capital, scale (size of boats), technical innovations, work organization and traditional craft skills can be studied comparatively; the cases come from the "developed" world (US, Scotland) as well as from LDCs. Once again, the tendency is to see boats as being purely a technical innovation without regard to ownership, scale or work organization, with the consequence that even government investment—Alexander's Sri Lankan case—does not ultimately benefit the fishing communities which were the targets of intervention.

Natural resource development in an LDC may place the administrator in an uncomfortable position subject to great temptation. It is not at all easy to decide how far one goes in defending the rights of small tribal groups to their traditional hunting or fishing grounds, when the alternatives appear "economic" and even essential for national development. Turnbull gives a horrifying account of the "end of goodness" among the Ik people of Uganda (1972:265-286), a small tribe of hunter-gatherers who were moved to clear the territory for Kidepo National Park (which it was hoped would earn Uganda much needed foreign exchange). In their new home on a neighbouring mountain range the Ik began to starve (hunting and gathering as a way of life is quite site specific). Turnbull argued that unless the pathological social system which emerged under starvation conditions was destroyed in the next drought—which has now occurred in 1979-80—the people would probably die.

Western scientific advisors typically urge an LDC to make more "economic" use of natural resources by allowing multiple forms of land-use within the public domain. For example, if a country has major forest reserves, the advisor following US practice will formulate a "management plan" that may combine elements of forestry, wildlife conservation, hunting, tourism, and water conservation. Discretionary use on a permit or regulated sale basis then replaces rigid controls and single-use administration which many LDCs inherited from the colonial regime. Unfortunately, multiple use systems presuppose good communications, a high degree of mobility, strong legal controls over land use, and the ability to spot violators readily. In practice, LDC field staff lack these administrative correlates. When a junior official can earn double his monthly salary from a single poached leopard skin, the temptations that multiple-use put under his nose are hard to resist. What does one do if the president's wife is the main financier for the nation's poaching business? Single-use systems are easier to enforce and for the time being should be preferred. As a rule in LDCs one needs to assess carefully the degree of control which is feasible before deciding on particular resource management systems.

D. Agricultural Research

In the transfer of Western technology the sponsorship of applied agricultural research is usually viewed as a success story, one of the few instances where an imported technology can within a few years directly benefit nearly the whole rural population. The amazing transformation of American agriculture in the decades following the 1930s—often giving a four or fivefold increase in crop yeild per unit of land—is seen as a model which many LDCs can emulate. This became known in the 1960s as the green revolution strategy (in contrast to the 1950s emphasis on tractorization under the "transformation approach"). In place of machinery one concentrated on releasing the full potential of organic capital within the living systems themselves: better selection of varieties, faster maturing strains, more timely application of water and fertilizer, and more effective chemical protection against pests and weeds. Individually, these changes produce only a modest increase in yields; employed in concert they generate dramatically greater amounts of grain from the same land. An early breakthrough in wheat breeding, both in Mexico and in India, was followed by similar improvements for maize production (particularly in Kenya) and subsequently for rice growing (throughout much of Asia).

The early phase of international agricultural research was largely undertaken by the Rockefeller Foundation, and is well described—see Stackman et al. (1967), Myren (1969), Johnson (1972), and Paddock and Paddock (1973). Now that the approach has been broadened to a wider cross-section of tropical crops it is apparent that the initial emphasis on cereals was fortunate. They show much the quickest response and are not as site-specific in their

genetic character as some traditional food crops. The Paddocks point out that had Borlaug stayed with the Rockefeller Foundation's initial aim of improving Mexican legumes, the breakthrough might never have occured.

The Green Revolution

Initial academic analysis of the green revolution stressed the problems which accompanied the early spread of high yielding varieties. See Wharton (1969) and Falcon (1970). These included the loss of indigenous varieties whose genetic potential represented hundreds and sometimes thousands of years of continued selection; the much higher level of managerial skill required of the farmer; the capture of benefits by larger farmers with access to credit (essential because of purchased inputs); the need for better water management; the high spoilage and storage losses which resulted when primitive marketing systems could not handle increased surpluses; and the dysfunctional aspects of pricing (e.g., fertilizer subsidies which mainly benefitted large farmers). Radical critics went further, arguing the whole approach is aimed at dispossessing poor farmers and at giving international capitalism monopoly control over the world's stocks of plant genetic material.

There is little doubt that the green revolution package does put farmers at greater risk. Standardization on only one or two varieties means that a nation can have its food supply imperiled by an unexpected disease or virus. Multi-cropping in each season encourages the persistence of diseases and pests within the fields and draws heavily on the nutrient reserve in the soils. Reliance on herbicides and pesticides introduces potent chemicals into the local food chains. And the actual gains to the farmer are less than the yield increases suggest, since production costs escalate.

But Lipton's review of Farmer's book *Green Revolution?* is probably correct in stressing that, on balance, once adoption becomes widespread increased labor demands and the stabilization of food supplies do benefit the poor as well as the rich. Over the years Bruce Johnston at Stanford's Food Research Institute has championed the case for application of the green revolution package to the smallholder sector, using as examples the impressive record of Japan and Taiwan (Johnston, Page and Warr (1972) and Ohkawa et al. (1970). Both Attwood (1979) and Critchfield (1979) argue that these measures *are* working, at least in some parts of South and East Asia. For a general review of the issues, a good starting reference is Dahlberg (1979); for the literature see Johnston (1970, 1977).

The best documented programs happen also to be the most successful: the spread of dwarf wheat throughout north India's Punjab plain (largely sponsored by the agricultural university at Ludhiana), and the adoption of "miracle rice" strains by several Asian nations at the IRRI's urging.*

The Indian materials are particularly good. One should start with Critchfield's eye witness account (1973) of a harvesting season on the north Punjab plain, supplemented by Day and Singh (1977) on the aggregate picture. Other sources include Sen (1974), Dasgupta (1977), Rao (1975) and Muthial (1971). Comparable sources on the rice programs include Farmer (1977), Shand (1973), Palmer (1976), Gable and Springer (1977), Wang and Hagen (1980) and Chandler (1979) for the IRRI experience. Specific country and community cases include Lewis (1971) and Hayami et al. (1978) on the Philippines, Hanks (1972) and Ishii (1978) on Thailand, Smith (1975) on Bangladesh, and Geertz's classic (1963) on Indonesia (Java). Less successful and less well known have been the maize improvement efforts begun in Mexico and spread by CIMMYT to various tropical countries (including for a notable program, Kenya). The Mexican experience is reviewed in Hewitt (1976), Paddock and Paddock (1973), Dias-Cisneros (1974) and Gladwin (1977, 1979).

With the exception of the Gable and Springer (1977) volume, most of the literature focuses on the response side and uses an econometric analytical framework. Excellent as the analysis has been—see Schuh and Tollini (1979), Scobie (1979), Evenson and Kislev (1975), but particularly the Arndt et al. volume (1977)—one reads such accounts with a sense of wonderment, so thoroughly has the adminisrative nature of the green revolution package been disguised. These modifications *are* essentially administrative in nature despite their agronomic content. Many nations have carried on agricultural experiments for years. What changes under a green revolution approach is: the application of clear and rational objectives to guide the sequencing of agronomic experiments; the coordinated development of an input delivery system; and the joint application of better seeds, purchased inputs, and timely watering at the farm level. Provided one starts with adequate resources, the measures needed to realize a "green revolution" are principally administrative.

Risks and Problems

This explains why investment in agricultural research remains a high risk proposition within LDC's. Research scientists are notorious for their belief that crop research is a fundamental necessity, regardless of costs and contexts. They ignore abundant evidence that in the poorer LDC's the larger share of applied research is never carried

*For a recent review see the *Economist's* India survey on the "greening of the land," Vol. 278, No. 7178 (March 28, 1981), pp. 8-15. The rice programs are put in perspective by Lipton in the *Journal of Development Studies*, Vol. 15, No. 4 (July 1979), pp. 342-349.

through to completion—the expatriate project director leaves, essential equipment breaks down, the fields are flooded, etc. In the tropics there are always abundant reasons why well-intentioned ventures like field experiments never quite reach maturity. Technical research quickly degenerates into a charade, related more to the national desire for scientific respectability than the achievement of discernible outputs. Those concerned with the productivity of agricultural research as an investment ought to confront the basic organizational issues at the very start: how do we determine what research is essential (when there are so many promising lines of inquiry), and then how do we insure that field results will eventually get translated into practice? Both questions require knowledge of the *social organization* of applied research as an activity in its local context. Good and useful answers depend upon the effectiveness of linkages within the inter-agency matrix of field services. About such matters the typical field agronomist has neither analytic competence nor much professional interest.

The literature on the transmission of agricultural research—an especially useful volume is Myren (1964), but see also Moseman (1970) and Bunting (1979)—makes it clear that the linking system contains two crucial interfaces where an accurate and timely two-way transfer of information must occur. *At the top*, the technical scientists must be in sufficient touch with field constraints so that breeding objectives fit local needs. Here the recent elaboration of a "farming systems approach" (see McDowell and Hildebrand 1979 and Norman 1979) is extremely important, not so much for its intrinsic merit (which can easily be overstated) but as *a method of educating scientists to see the realities of peasant production constraints.* In addition, research scientists must be exposed to a representative cross-section of farm types where feasibility tests can be conducted *before* the expensive process of packaging research information begins. *At the bottom*, the contact staff within the service delivery system must be sufficiently trained, equipped, and motivated to communicate technical recommendations accurately and to spot instances where adjustments are needed. In between, we have the usual hierarchical civil service structure. All three elements are problematic in many LDCs.

Unfortunately, the low present productivity of research investments in an LDC is usually masked by scientific ideologies shared among agronomists, and by the general assumption that crop research is a precondition for realizing "modern agriculture." If anything, needs for research seem greater in an LDC context than in the temperate zones: the indigenous ecology is extraordinarily complex (and sometimes little understood); diseases can spread with astonishing rapidity, and many producers must compete with synthetic alternatives, making reductions in production costs a matter of national survival.

Specialized production services are provided because policy makers believe them necessary, often in advance of demand by the farmers and usually from the top downwards. The field staff's primary task during the initial period is to encourage the adoption of the innovations which will make use of their services. This situation makes any calculation of the productivity of investment hypothetical, since the service is being provided in anticipation of a future role that does not yet exist. Because of this, research and extension services are often established within LDCs in communities that lack either the crops or the technology which require assistance. Sustained by their ideological commitment to "modern agriculture," ministry officials rarely ask whether their research services are actually productive.

An outside advisor asked to assist the typical ministry of agriculture must pay particular attention to the information flow within the service delivery system matrix. It is very common that research institutions are physically and bureaucratically segregated from other portions of the overall delivery system. In an LDC information flows are often blocked by bureaucratic boundaries. One tactic for overcoming bureaucratic blockages is for the research station to assume the role of preparing the recommendations' package that will be communicated to farmers. The experiment station may conduct its own training seminars for contact staff, working directly with village-level change agents in extending a preplanned package of technical innovations. But the experience of the Caqueza Project in Colombia suggests that the formulation of "packages" which actually do meet villagers' needs is a far more demanding task than scientifically trained agronomists at first assume (Zandstra et al. 1979).

E. Crop Development

Crop introduction programs are among the easier of rural development initiatives, aside from technical measures like road building or rural electrification. Yet in contrast to nonagricultural policies and projects, crop development will seem risky and time consuming. Hirschman specifically exempted agricultural projects in his formulation of the 'Principle of the Hiding Hand' (it is better not to know all the difficulties in advance) because the troubles appear so quickly and dramatically (1967).

The case materials on crop development projects are abundant—see particularly de Wilde (1967), Borton (1967), Bunting (1970), McCloughlin (1970), and Hunter et al. (1976)—but they tend to be published in much abbreviated form. Two excellent overviews of the role of agriculture in tropical development constitute the starting references: Anthony et al. (1979) for tropical Africa and Millikan and Hapgood (1967) for the LDCs generally; and there is a recent and rapidly expanding literature on

Asian agriculture.* Agronomic and technical aspects predominate, and one has difficulty in finding sources that specifically address the administrative requisites of crop introduction. My comments derive from a study done some years ago in Eastern Kenya, where I had the good fortune to gain access to the daily records covering forty years of attempted crop development in a very diverse ecological setting.

There are advantages in sponsoring the adoption of new crops or the improvement of existing ones: These policies presuppose farmers already have access to land, and thus an incentive to participate if the innovations are indeed profitable. If there is demand, crop marketing can often be left to commercial channels. Incremental adoption starting from a small initial investment is usually possible. Already established farming may have laid a foundation of cognate agricultural skills; and there are often prospects for borrowing genetic improvements and scientific knowledge from other locales. However most field agronomists will be sufficiently occupied in meeting day-to-day demands (which are considerably heavier in the tropics than in temperate zones) to make these advantages seem like utter nonsense.

Tropical crops differ markedly in their particular requisites. Disease vulnerability is perhaps the most significant factor; it is a tremendous advantage if the crop being dealt with is hardy and relatively disease free. Pests come in the same category. The temperate zone advisor may find it hard to grasp the level of challenge encountered in particular field situations. Another significant feature is a crop's moisture requirements, and its sensitivity at different growing stages to short periods of drought or wind damage. Then there is the demand it makes on soil nutrients, which determines how often it can be replanted and which crops can follow it in a field succession. Some crops can withstand quite negligent treatment; others require skilled and timely handling. The labor input at each stage varies, and affects which crops can be combined into a single farming system. These features in concert affect the levels of crop risk, which have major administrative implications.

Judging Success

One of the first things an administrator assigned to a new rural community needs to learn is the obligations which the predominant cash and food crops impose on local social organization. Peasants often complain that meetings requiring their participation are called at periods of peak labor demand, during planting, weeding, or harvest. It would be revealing to document administrators' crop knowledge as a predictor of the degree of local response.

Here a word of warning is in order. The criteria used to evaluate crop output have a large influence on the apparent "success" of various crops. Western trained agronomists almost invariably measure crop productivity in terms of the unit of weight produced per acre (or hectare), converted into money value by price. This criterion will often give results at odds from farmers' preferences. Agronomists may fail to grasp that different rankings of crop desirability will be obtained if one applies other evaluative standards, such as least risk, least cash input, or least labor required at critical periods per unit of output. Land-limited and labor-limited farming systems can as a consequence show rather different patterns of farmer preference, and these will be further affected when peasant farmers are cash starved. Again and again one receives recommendations from the research agronomists which meet *their* criteria but do not constitute an improvement when weighed against equally rational standards employed by local farmers. Much of the supposed conservatism of peasants the world over probably can be attributed to this basic misunderstanding. Of course, a research station has limited incentives to evaluate the riskiness of a crop or to record labor inputs over the season. Then there is the thorny issue of whether to apply selling or buying prices when valuing the crop (for many food crops these differ and may fluctuate up to 300 percent over the season). The simplifying assumptions the researcher must make to reduce analysis to manageable proportions often produce results discrepant from those a farmer would reach. In short, one should *never* trust agronomic recommendations until checking the feasibility testing they have undergone and the simplifying assumptions they embody. It is usually safer to ask farmers directly which crops they prefer and why, and then look for recommendations congruent with these choices.

Another source of friction is the agronomist's tendency to assume that because *average* figures can be used as a criterion of long-run performance, they should constitute the basis for immediate advice. Not so. Consider a system subject to greatly fluctuating rainfall. The average figures will indicate a certain date is statistically safest for planting, e.g., in Kenya the 15th of March. But farmers realize what really matters is to judge each particular season—early, late, or on-time—as accurately as possible. Few seasons will approximate the average, but by spreading his planting dates a peasant can insure his family some yield in most seasons. Embu farmers watch the cloud configurations on Mt. Kenya, which they say allows them to determine when the rains actually begin. This is their empirical indicator for judging each particular season, which is after all what determines actual

*On Thai agriculture alone we have Hanks (1972), Calavan (1977), Kunstadter et al. (1978), and Van Roy (1971). For Indonesia there is Geertz (1963) and for the Pacific Bayliss-Smith and Feachem (1977). Two very useful general sources are Harwood (1979) and Biggs and Tinnermeier (1974).

yield. Mean figures, useful for judging long run performance, may produce bad advice where individual seasons depart widely from the mean. So also with the use of many types of mean quantity estimates within agricultural economics (a point Harriss makes vis-a-vis Sri Lankan rice marketing, 1978).

Planning and Organizing

The most efficient way to learn about a given crop is to follow the production cycle through, starting from the choice of plot right down to the final payout. (With high value cash crops like tobacco, coffee, or tea which require processing, one must also follow the off-farm operations. These strongly influence final quality and hence price.) This presents one way of organizing crop services, with each major crop having its own research, planning, extension, credit, supervisory, and processing activities linked serially under one authority (parastatal). Some such organizations have flourished in Africa—tobacco and tea provide the best known examples, but there are several others. See Blume (1971), Harrison (1969), Sofranko et al. (1977), and Steeves (1975).

There are many apparent advantages. The connected influence of the related crop services on productivity is made obvious, so that quality control is easier to supervise. The crop can be financed as a package, including credit for smallholders secured against the control and records of the processing organization. The crop authority has an incentive to maintain quality and obtain high prices, and sufficient size to afford its own specialized research. And a modern processing unit like a tea factory produces secondary employment and incidental benefits for the surrounding community. The individual units closely resemble the great tea and rubber estates developed under colonial agriculture, but replace the field system by a network of peasant growers. When the individual factories are linked together under one overall organization like the Kenya Tea Development Authority (KTDA), the total organization becomes large enough to undertake systematic production planning and even international marketing. The KTDA system is a particularly interesting and sophisticated example; for descriptions of it see Blume (1971), Steeves (1975, 1978), Moris (1972), Moris in Leonard (1973), and Weiss et al. in Rondinelli (1977). For this very reason it is unfortunate that Steeves who has the most complete data on the KTDA was so totally preoccupied with the issue of rural class formation.

But it takes a fairly high value crop to support such an administrative superstructure. The identity of producer and processor interests in maintaining high quality and yields is perhaps easier to sustain with perennial tree crops like tea or rubber than annual crops like tobacco or cotton. The organizational overhead is locked into the support of facilities and research. If crop prices on the world market do not keep pace with the general level of inflation, the organization finds itself more and more heavily taxing producers until the peasants are supporting it and not vice-versa.

Not all crops are amenable to "Authority" treatment. A Spinach Authority with a corps of drivers, market inspectors, credit managers and the like would be a patent absurdity (not too far removed from the typical African cotton board). The first one or two authorities can show dramatic results by hiring away the better Ministry of Agriculture staff and by avoiding the worst of the civil service regulations. But having from six to ten such competing entities is not necessarily an improvement over a strong Ministry of Agriculture responsible for major crops through separate divisions.

Whatever supervisory structure is adopted, it is important that agricultural planning be carried out in an integrated fashion, so that the needs of all communities get considered and major gaps in the government's program do not persist. Over the years the Kenya Department of Agriculture (now the Ministry of Agriculture) has developed a system of zonal crop recommendations, differentiated not by district but by ecological zone. Originally devised by an ecologist (Leslie Brown), this system used indicator species and altitudinal zonation as the basis for guiding crop introductions (tea, coffee, etc.) and plant breeding (maize). It integrated a large volume of technical information into a framework accesible to general administrators making infrastructural and investment decisions. It broke down in regard to the drier districts, because insufficient work had been done to identify promising cash crops equivalent to the higher value crops like tea, coffee, and pineapples available to the medium to high potential areas.

The Importance of "Minor" Crops

The two missing elements in many LDC agricultural programs are the traditional food crops and the development of indigenous species with economic potential. The tropical staples which have received adequate technical research are those which overlap the US grain crops: wheat, sorgham, rice, maize, and soya (a legume). Many other crops which flourish in tropical environments, such as bananas (there may be up to forty traditional varieties present in a given country), yams, manioc (cassava), arrowroot, green and yellow grams*, indigenous legumes, passion fruit, papaya, mangoes, and various amaranths** these being the ones I found Embu farmers

*Grams are chick peas often used as animal fodder.

**Amaranths are colorful leaf plants as love-lies-bleeding, pigweed, tumbleweed, etc.

cultivating—are as a rule poorly served by both research and extension services. As it happens, some of these crops constitute the main cushion against starvation in dry years when the principal staple fails. They also suffer from the division of effort in scientific work between agronomists and horticulturalists. In the tropics the traditional food crops are often intercropped (with up to twelve species in one mixture), and are frequently interplanted with fruits or tree crops (Norman 1973, Ruthenberg 1976, McCloughlin 1970, and particularly Leakey and Wills 1977).

Because these "minor" crops are not planted in orderly fields but tend to be clustered in the yard or along the watercourse, they are often missed by extension staff and treated as being of no consequence. Disease outbreaks will pass unnoticed. Much valid empirical knowledge about these crops which older farmers possess, perhaps representing centuries of accumulated wisdom, is being irretrievably lost. This happens partly because it is encapsulated in vernacular terminology no longer used, but also because field staff have not been trained to recognize its significance.

A similar danger obtains in regard to the genetic materials themselves. In the tropics there are hundreds of indigenous plant species with potential economic uses in a modern economy (see particularly the US National Academy of Sciences publication, *Underexploited Tropical Plants*). Those who have not worked in the field may not realize the large element of historical accident in the evolution of production processes and the attention given to particular crops. Many equally promising crops which happen to grow in remote places or which duplicate those already used in developed countries are simply ignored. Compared to our extensive knowledge of temperate zone species—their habitats, needs, and diseases—we are just beginning to inventory the genetic resources of tropical nations. But the time lag between the identification of a promising crop and the development of an accompanying technology (including the capability to bulk and distribute it) may be long, and most LDCs soldier on with the sometimes ill-adapted crops which already command a proven market. The missing ingredient is the kind of sustained, problem solving focus which public organizations often seem incapable of providing. There is real danger that irreplaceable genetic stocks of unknown value may be lost before their potential worth can be investigated.

Requirements for Success

From the administrator's standpoint, successful crop development constitutes a fairly sensitive test of system capabilities:

1) It requires fast recognition of potential dangers, such as the outbreak of a virus disease or the spread of a dangerous pest such as army worms. The first thing one should do when arriving in a new district is to learn where agronomists can be found, and then learn from them about the more likely dangers to watch for.

2) It depends upon effective communication across organizational barriers, from field experiment stations to the extension service and then to farmers and back.

3) It necessitates good coordination between the various producer services that a given crop requires: soil testing, land planning, seed supply, crop protection, disease diagnosis, fertilizer availability, equipment inputs, storage availability, and timely and efficient marketing.

4) It usually requires maintaining a given focus within the field service for several seasons until farmers (and their advisors) have fully mastered the accompanying technology.

5) It often calls for local improvisation to adapt the technology to overcome unexpected difficulties.

6) It usually involves a parallel effort to establish seed bulking, nurseries, extension materials, and any other inputs which the commercial system cannot yet supply at a local level.

7) It may call for a major training effort if local farmers are not familiar with the crop or its associated technology.

8) It depends on effective financial arrangements so that participating farmers can be paid rapidly.

All in all, these requisites make a crop introduction campaign a useful device for identifying the weak points in an administrative system.

F. Livestock Development

Livestock development measures are traditionally more allied to animal science than to extension. Policy measures derive from the physiological needs of cattle: disease control, water development, pasture management, supplemental feeding, marketing organization, and breed improvement. Livestock specialists share a high degree of similarity in background and training. This uniformity of outlook is in part synthetic. The actual systems being dealt with vary greatly in intensity and in animal type (cattle, swine, goats, sheep, poultry, even rabbits).

These systems divide into seven categories: range management, beef and feedlot production, dairying, artificial insemination, swine production, smallstock, and poultry production.

The *animals* within each category share much in common, but the accompanying economic systems do not. The major dimensions of variability among systems include: intensity of land use, whether land and water are individually owned, whether herders own the animals, production objectives—whether oriented towards the use of byproducts (milk, wool, transport, animal power) or slaughter, degree of commercialization, whether the herds are mixed (e.g., cattle, sheep, and camels), degree of

nomadism, degree of security, and degree of disease challenge.

It is the interaction of these contextual variables which affects the design of livestock development programs. Because the technology is oriented towards animals and not systems, it offers little to guide the planning of field programs.

An immediate consideration is whether livestock are already part of the local economy, or whether a given type of animal is being introduced for the first time. If the former, one must deal with the whole fabric of local customs and institutions; if the latter, technical risks will be high because it will be hard to predict whether managerial requisites can be met. Livestock keeping requires familiarity with animals and considerable managerial acumen. Most of all it requires a mastery of disease risks through good husbandry and adequate veterinary protection. The moist tropics abound in animal parasites and viral diseases, to which stock are more susceptible because of heat and nutritional stress. In many areas, just keeping the animals alive is an administrative accomplishment.

A lively debate has gone on for years between those who favor upgrading local breeds (which have already acquired disease resistance) versus those who favor introduced or "exotic" breeds. For introduced stock the death losses can be so dramatic – say twenty-three out of twenty-six animals dead within three weeks of arrival (an actual example from Tanzania)—that veterinary measures tended to preempt other considerations in much of ex-colonial Africa and Asia. Many LDCs have inherited a huge corpus of veterinary regulations. The first cadre of field veterinarians spend more time administering movement permits and quarantine regulations than actually treating animals. Indeed, where resources are scarce the same argument one sees in human health programs between concentrating on preventative vs. curative measures becomes relevant in regard to animal health.

Adequate disease control depends on a high degree of administrative capability: identification and monitoring individual animals, rapid communications, available supplies of the right drugs, accurate diagnosis, reliable tests, and controlled movement of stock along recognized routes. The maintenance of a disease-free zone (required if meat products are to be exported to developed nations), easy to certify, is extraordinarily difficult if an area has both commercial production and migratory pastoralism. In practice, virtually the only areas that genuinely meet disease control criteria will be those exclusively devoted to large-scale beef or diary production with no other livestock permitted. It takes ten to fifteen years of intensive effort to achieve these conditions. Any proposal which assumes disease control in advance of the fact is a high risk venture.

Modernizing Pastoralism

After achieving independence a number of African countries entertained the idea of monetizing their traditional livestock production. On paper, the returns looked good. If one imputes current market values to an indigenous herd of, say, one million animals, with only a 10 percent annual off-take the economic benefits to owners and the nation alike appear substantial. Here we have an excellent illustration of the extreme difficulty LDCs face in trying to change underlying economic and demographic patterns through limited policy instruments which address only one or two aspects of the constituent system.

The literature on this topic is surprisingly complete. On traditional systems, we have the bibliography by Little (1979), case studies by Cole (1975), Dahl (1979), Edgerton (1971), Hjort (1979), Whyte (1968) and the collection by Monod (1975). Topical syntheses are provided by Dahl and Hjort (1976) and Schneider (1979), and regional syntheses by Konczacki (1978) for East Africa and Shapiro (1979) for West Africa. The range management approach is outlined in Abercrombie (1974), with case studies in Lofchie (1970), Livingstone (1976), Salzman (1980), Simpson (1970) and the Masai Project case later in this volume. Livestock training is covered in Strange (1978), and the ecological setting in Dasman et al. (1973).

Throughout a huge zone of savannah stretching across West Africa through the Sudan and into East Africa, one encounters remnant populations of semi-nomadic pastoralists who once dominated the area. Today these peoples are under heavy pressure stemming from the intensification of agricultural populations on marginal lands which were once the main dry season grazing areas. The pastoralists have been relatively easy to dispossess. Meanwhile the introduction of veterinary science has stimulated an increase in their herds, leading to a classic situation of the tragedy of the commons. Actions taken by individuals to survive make the overall situation worse. These trends have overwhelmed the attempts to bring traditional pastoralism into the money economy in an orderly fashion.

Administrative Requirements

The administrative requisites for modernizing pastoralism have usually been overlooked (Chambers 1979). It is assumed that this is primarily a *technical* problem, to be dealt with by range management or livestock development specialists. In fact the intervention technology is incomplete, and embodies vulnerable assumptions about the indigenous system. In African pastoralism we do not yet control land use, and attempts to enforce statutory regulations are bound to fail. Pastoralists are *not* specialized beef producers. They employ a mixture of cattle, sheep, goats, donkeys, and

even camels to exploit a difficult environment. The market can neither supply replacement stock after a drought nor move animals in poor condition to slaughter without high death losses. Given the interacting features of the system, there is little chance that individual improvement measures such as dipping or breed up-grading will yield positive results over the longer run.

Chambers stresses that features of the administrative system work against effective assistance to pastoral populations (Chambers 1979). The lack of continuity in postings is especially unfortunate for livestock communities where the administrator must learn to understand the local system and establish rapport with the elders. Assignment to work in pastoral areas is regarded with distaste. Such areas are often drought-prone, remote, hot, and without social amenities. They make ideal punishment posts. Even the usual administrative functions of collecting taxes or building schools are more difficult in livestock areas. Officials also have their own beliefs about the supposed conservatism of the pastoralists—though in large part these beliefs are incorrect (Livingstone 1977). Thus the ineffectiveness of remedial measures is matched by the ineffectiveness of administrators left to struggle with an assignment to assist pastoral communities: a recipe for disaster.

Time for getting the situation under control is running out. The 1973-75 Sahelian drought appears to have been the first of several environmental crises which will become more common as farming on the marginal lands of Africa intensifies. There is a huge literature on the various aspects of drought and desertification in Africa (Glantz 1976, 1977, Dalby et al. 1977, Caldwell 1975, Hussein 1976, O'Keefe and Wisner 1977, Lofchie 1975, Ball 1975, Morris and Sheets 1974, Franke and Chasin 1980, and Lateef 1980). Once a crisis arrives—as it did again in East Africa during 1979-1980—it is too late to deal with underlying causes. The best the administrator can hope for is to keep individuals alive, perhaps even at a cost of the destruction of their traditional way of life (Turnbull 1972). It is a sad commentary that the best we can offer is other studies of how to organize disaster relief (Torry 1978, Kiste 1974, Cochrane 1970, Marshall 1979, and Oliver-Smith 1977).

G. Agricultural Extension

At some point in the rural development process clients must come into contact with the inter-agency matrix of official programs discussed in this chapter. It is inevitable that the task of establishing linkages to farmers should have been elaborated into a specialized function, "extension" as it has come to be known. "Extending" is a logical requisite of any program requiring farmers' involvement. Many rival agencies employ staffs whose primary role is the persuasion of farmers to participate: seed companies, land rehabilitation programs, insemination services, credit agencies, etc. In a developed economy like Germany or the US the commercial network is highly differentiated, and much of the extension role is accomplished without public sector intervention (making the U.S. county agent's job somewhat superfluous).

In LDCs the lack of effective contact between development agencies and their potential clients is a major weakness. The task is hard; one is dealing with thousands of smallholders who may be resistant to recommendations. In the late 1940s in British and 1950s in French colonies, regimes began to establish extension services of one kind or another (in Kenya the first such organization was a direct copy of the US Soil Conservation Service). Usually the indigenous Department of Agriculture broadened its regulatory role to include an extension component (the contradiction between objective and means was seldom perceived). Latin America missed this stage and was late to develop public sector extension services in the form one sees throughout most of Africa and much of Asia.

Several relevant but historically separate bodies of literature offer a conceptual foundation for rural development training and extension. First, we have "extension methods" as taught to generations of students in the US land grant agricultural university systems (cf. Beal and Blount 1966). Then there is "practice adoption theory" with its focus on change agents, opinion leaders, adopter categories (innovator, early adopter, etc.), adoption stages (awareness, interest, etc.), and diffusion processes—cf. Rogers and Shoemaker (1971), Rogers and Svenning (1969), Roling (1970) and Gos (1979). An even broader approach looks at development as a consequence of effective communication (cf. Harrison 1972, Indeles and Smith 1974, Webster 1975, Schramm and Lerner 1976 and Teheranian et al. 1977). Yet another viewpoint is provided by writings about nonformal education (cf. Bhargouti 1973, Combs and Ahmed 1974, and Srinivasan 1977). Finally, there is a large potentially relevant literature on Third World bureaucratic organization—rarely tapped to date by professional "extensionists"—and a few studies like Harrison (1969) or Leonard (1977) which use sociological theory to illuminate issues in field service organization.

The extension materials actually being used in LDC training are of a severely practical nature: Bradfield (1969) or Mosher (1978), Axinn and Thorat's (1972) world survey, Maunder (1973), Axinn (1978), the readings by Crouch and Chamala (1981), and country case studies such as Madigan (1968) on the Philippines, Lever (1970) on Botswana, Molho and Gitlin (1970) on Israel, Rice (1974) on the Andes, and Harrison and Leonard on Nigeria and Kenya. The case studies in Borton (1966, 1967), Ahmed and Coombs (1975), Sheffield and Diejomaoh (1972), and Watts (1969) are also useful. Even so, considering the large investments LDCs have made in extension services

the amount of good quality professional literature is disappointing.

Theory vs. Practice

"Extension" as we know it today within LDCs is associated with an information-delivery model of public sector assistance to farmers. The goal becomes "hooking up" the maximum feasible number of farm families to an information network, with "recommendations" coming from the top downwards and "farmer feedback" entering at the bottom and travelling upwards. This classic model rarely performs as expected. Accurate and timely information flows are the exception rather than the rule in strongly hierarchical bureaucracies. Leonard (1977:132) warns that, despite the fashionableness of communication theory, we have little hard data about what happens to extension messages as they move upwards or downwards in typical LDC structures. The same structure often has unavoidable regulatory functions—collecting farm loans, enforcing quarantine regulations, etc.. It would be naive to assume these do not influence interactions at the contact level. We saw earlier that research results often lack feasibility testing, and may not confer the promised benefits when adopted. The environments may be so diverse within a district that a poorly trained contact staff must achieve a rare order of skill in deciding which recommendations to communicate in which settings. All in all, the idealized "extension service" which we create in the minds of agricultural students may not exist.

Extension trainees are rarely prepared to deal in an analytically sophisticated fashion with the many structural issues which arise repeatedly, because of the poor fit between organizational objectives and the field capabilities. Typically the extension administrator must decide whether or not to have a separate "extension service"; how to coordinate agricultural services with other village level functions; how to link service investments to the productivity of crops; how to make field agents accountable to their clients; what ratio of contact staff to farm families to aim for; what resources to give each agent; whether to use full-time or part-time contact staff; how to sustain field morale; whether to adjust coverage to fit the territorial administrative hierarchy (yes, if at all possible); and what overlapping powers should be surrendered to the general administrators with whom field staff must maintain good working relations. These are extraordinarily complex issues. My own contention is that fundamental structural stresses often underlie the poor performance evidenced by LDC contact cadres.

In LDCs a special problem of rural extension work is the low morale of field workers. This aggravates the other problems endemic when salaried staff are posted to work in rural villages: unaccounted loss of funds, taking of bribes, failure to visit farmers, avoidance of difficult tasks and particular categories of clients (women, the aged, the landless poor), and emphasis on paperwork rather than field accomplishment. To rectify low morale one must first determine if the tasks set are reasonable. Then one must investigate the reference group against whose privileges and assignments the field staff are comparing their own situations. Another frequent problem is the lack of incentives for those assigned to remote communities where support services are not operational and one's work will go unnoticed. Unless these motivational problems can be overcome, all other initiatives are likely to fail.

We tend to think of extension work as consisting of voluntary liaisons between the change agent and individual farmers. The information delivery model accords well with the situation of the US county agent, who drives out to visit farmers or is called by them in his office. But in much of ex-colonial Africa and Asia farmers have internalized a different model for interaction between officials and clients, one based upon the decorum of a village meeting. There is a stylized format which people accept as the proper way to meet outsiders. Well understood by actors on both sides, the public meeting is a ritualized occasion contradicting the assumptions of US-derived extension models in nearly every respect. It is always called from above. A set sequence of messages is exchanged, and the communication is all one way. When villagers respond they are laudatory of the government's efforts, or, failing that, at least deferential. The respondents are almost always the same individuals, generally older men of influence. It is understood that the outsiders will leave before the end of the day, and nobody pays too much attention to what they say. As a form of rural development theater it becomes an occasion for expressing both village and government solidarity; it most certainly does not *change* anything.

As a public sector investment the extension service is vulnerable to what might be termed the "averaging assumption." Because administrative resources may be fiercely sought by certain interests or groups, LDC officials are often very careful not to allow special treatment for particular areas. A common decision rule is that staff and transport must be equally allocated between all territorial sections. Uchman describes how this works out in India (1972:242):

> Each state...may get a 'package programme' for intensive agricultural development ...; every block must receive a birth control clinic, regardless of need, availability of alternatives, or opportunity to make a difference.

This strategem minimizes political and inter-agency conflict, and probably favors the marginal areas with low populations (otherwise the strongest politically could command the greatest resources). But the danger is that once rural development services fall below the threshold

for effective interaction, *no* development may follow from public sector investment. By spreading organizational resources thinly over the entire nation, the averaging rule risks creating a situation wherein everybody is poorly served by structures which do not fit anybody's needs precisely.

The Basic Requirements

In recent years the World Bank has advocated a set of reform measures known as the "training and visit" (T & V) system. As described in Benor and Harrison (1977:6-9), it is heavily based on Indian experience, where it was found that extension services were subjected to overlapping authority, had multiple and contradictory tasks, covered excessive areas, lacked ties with research, had insufficient and outdated training, and held low status. The reform measures attack each of these symptoms by: creating a unified extension service, relieving it from regulatory and information gathering tasks, assigning each field worker a realistic number of families, regulating supervisory ratios at each level, choosing innovations which promise immediate impact, using farmers' fields for conducting feasibility trials, giving the contact cadre one day's intensive training every one to two weeks, covering the three to four most important innovations, improving farmers' management *before* encouraging purchased inputs, cultivating direct links to agronomic research, and paying attention to contact-level transport and incentives (1977:10-18, 29-38). Several of these recommendations represent a return to classical management principles.

More generally, the range of measures which might be adopted to improve extension productivity include: (a) setting up an agricultural information center to link research institutions with the field services (either centrally or by means of "application" units attached to each research station), (b) establishing a network of feasibility trials on participating farmers' land to provide better feedback to researchers, (c) creating linked, in-country input supply institutions, (d) providing refresher courses to up-date field workers' skills and knowledge, (e) reorganizing the work load and planning systems for contact staff, (f) introducing program planning for supervisory staff, (g) training contact staff in new approach methodologies such as "result demonstrations" (USAID) or "dialoguing" (Friere 1970, 1973), (h) learning how to identify innovations that fit into local farming systems, (i) organizing "pilot" or "saturation areas" as the focus of special campaigns, Kulp (1977), and, (j) using methods for identifying and organizing client groups.

H. Farm Credit

Financing rural development is a large topic, split rather sharply between macro-policy issues (rural taxation, etc.) and farm-level finance. It includes rural taxation, infrastructural financing, farm capital development, crop financing, and crop insurance.

Much of the literature consists of articles in agricultural economic journals not covered by the bibliography. Starting references of a general nature include Miller (1977) and Gordon (1976), as well as useful sections on farm credit in Lele (1975), de Wilde (1967) and the World Bank (1975). The Indian experience is reviewed in Datey (1978) and the Agricultural Credit Department of the Reserve Bank of India (1975). The argument for smallholder credit can be found in FAO publications (1964). There are three comparative case studies from East Africa: Hunt (1975) on Uganda, Vastoff (1968) on Kenya, and Due (1980) on Tanzania. Radian (1980) provides an overview of the issues connected with implementing tax policies in a poor nation. Our discussion concentrates on the administrative aspects of farm-level credit, but it is useful to begin by reviewing why the financing of rural development is generally so problematic.

The fundamental dilemma in poorer communities is the same issue facing colonial regimes which wanted to achieve self-financed rural development: how does the state fairly tax income which is not yet fully monetized? In subsistence farming an income tax is out of the question and a land tax burdensome, difficult to collect, and much resented. The small cash flow, dispersed settlement, and incomplete records render the usual revenue collection devices unproductive. Where peasants are cash-starved, they will have ready cash at only certain times of the year. (Eastern Kenya farmers often told me that if they had to pay taxes, they preferred the deductions be made from profits in advance so they would not see the money being witheld.) Throughout Eastern Africa the predominant taxing device affecting smallholders has been advance deductions made by the crop handling organizations.

The dangers of this approach are widely recognized by agricultural economists. It opens the door to uncontrolled bureaucratic expansion by the crop handling organization. It is generally regressive. It distorts the payment schedule, and the reduced preliminary payment (necessitated because with an export crop the final price and handling charges are often not known when payments begin) will further depress the apparent profitability of the associated crop. It is subject to localized corruption, sometimes to the extent that farmers are even deprived of all their profits. And it acts as an incentive for farmers to falsify their records (as when several relatives band together under one person's listing).

In contrast to the constrained cash flow situation in peasant farming communities is the increasing bureaucratization of rural services. Specialized parastatal and commercial bureacratic services are high cost solutions to farmers' needs. To the extent that "modern", highly centralized units replace small-scale dispersed ser-

vices, rural communities face increased financial burdens in the future. The full financial implications of bureaucratization are easily overlooked when transition begins because units are not self-financed at the local level and the staff accepts the ideology of modern management, that increased size yields greater efficiencies.

The Chicken vs. the Egg Problem

At the farm level, the offering of credit is often seen as a vital first step to allow farmers to break out of non-monetized subsistence farming. In theory, these farmers sell mainly surpluses beyond household needs and have too little cash income to invest in technology, which in turn locks them into low productivity from land and labor. So if one can tie loans to adoption of new technology and (perhaps) purchased inputs, it should be possible to boost a smallholder's productivity sufficiently to generate repayment and stimulate commercial farming for the market.

But offering farm loans before farmers are fully in the money economy rarely has the anticipated effect. It takes great managerial skill to budget cash flow over an entire season when payments occur in a lump form and banking services are not available. The more traditional farmers in more remote communities must rely on social obligations to meet pressing needs. Unless a loan is given in commodity form it will frequently be diverted to meet prior commitments. Even then a farmer may sell the commodity—probably at a reduced price—and then complain about the ineffectiveness of fertilizer to change agents.

The factor of farm-level risk is also often ignored in drawing up farm loan programs. At Makerere in Uganda some years ago we encouraged a peasant who had agreed to farm under instructions from the Faculty of Agriculture to buy an improved milking cow with a loan—and the cow was stolen!

Western-derived farm management advice pays scant attention to the sequential adjustments required in the tropics because of the variable onset of each season (Gladwin 1979). A farmer who applies for loan financing becomes tied to allocative decisions in advance of seasonal information. This accentuates the effect of misjudgments (greatly magnified if an external agent makes these decisions centrally). Farm loans are often used for purchasing inputs. What if the input is delivered too late to be effective in a good season? Or, what if the record keeping in the local cooperative is so poor the amounts issued and the dates received cannot be verified after the fact? And what if storage at the village level is inadequate, so that the crops rot before they can be sold? All in all, loan financing assumes the administrative context which *follows* from development. When implemented within subsistence farming in advance of development, loan financing becomes an *amplifier* of weaknesses already present within the local system.

The Effects of Defaults

Serious consequences follow from widespread defaulting in loan repayments. Where commercial loans have been secured against land title, the general administration may be asked to support a bank in evicting smallholders from their only source of livelihood. While legal, such attempts are in many regimes not politically feasible. Under the conditions we have just described, any attempt to secure farm loans against land title should be viewed as a squatter creation program. The usually favored alternative is to rely on a farmer's financial record in the cooperative or crop handling organization to guide the issuance of loans. But the best credit risks will be the larger, more commercial farmers who already hold positions of influence, and who are also the most likely to avoid repayment in adverse seasons. Once this is seen to happen, it becomes a general expectation that farm loans need to be repaid only when substantial profits are reaped. In many parts of Africa farmers expect the government to absorb the losses of bad seasons. Otherwise peasants with very limited cash flows—the very constraint we were trying to relieve by offering loan finance—must try to repay the previous season's costs out of the next season's production, leading to requests for still more loans. Furthermore, farmers will now have found that using purchased inputs in the recommended fashion is unprofitable. To re-establish financial discipline once widespread loan defaulting has become endemic requires draconian measures which will make an extension staff highly unpopular with farmers.

There are, of course, some differences—depending upon whether one is dealing with farm capital development, crop financing, or crop insurance. In all three areas experience derived from the developed nations is a misleading basis for offering advice to an LDC. We need to rethink fundamentally our whole approach to agricultural financing under conditions of subsistence farming and high risk agriculture. There are certain ways to offset the riskiness of seasonal farming—crop loans, guaranteed minimum returns, etc. They need to be considered critically, looking both at overhead costs and their feasibility under the conditions that typify smallholder farming. It is certainly time for extension services to refuse to support ill-conceived loan schemes which one can predict will have the ultimate effect of discrediting the extension agents rather than the distant financiers.

When Credit Seems to Work Best

In sum total, it seems from the African experience that farm-level credit becomes beneficial when: farming is predominantly monetized, the input delivery system works with reasonable efficiency, loans are secured against farmers' credit records, farmers have accumu-

lated reasonable managerial expertise, and there is a grass-roots organization in place to handle the crop and deduct loan payments. Then farm credit becomes one of Mosher's "accelerators," most useful once the transition to commercialized farming is underway. The farther one locates credit down the ladder towards subsistence farming, the higher the risks of generating negative effects and the more the supervision and training which must accompany the effort. With intensive training and access to new resources it *is* possible to move peasant farmers into specialized production, but this is a very high risk proposition in many tropical farming systems.

I. Women in Development

Since the early 1970s donor agencies have learned much about women's roles in economic development. Boserup's (1970) book (which remains an excellent starting reference) made it clear that women are responsible for effecting at the farm level many of the innovations which development programs sponsor. Yet, paradoxically, as Staudt (1978) shows for Kenya, Swantz (1980) for Tanzania, Dixon (1978) for Southeast Asia, and Huston (1979) generally, the actual participation of rural women in official development programs has been minimal. The policy question arises: are segregated "women's programs" of the traditional type (child care, nutrition, etc.) enough, or is a radical restructuring of delivery systems in general required?

The literature on this topic is growing very rapidly. There are several excellent bibliographies: the Institute of Social Studies (1978), Tinker et al. (1976) updated by Rihani (1978), Hafkin (1977) on Africa, Saulniers and Rakowski (1977) on Africa and Latin America, and Nelson (1979) on Southeast Asia. For an introduction see Dixon (1978), Chip and Green (1980) and Dauber and Cain (1980). Other than Boserup, those who specifically address structural questions include Reiter (1975), Rogers (1980), Cernea (1978), Mueller in Ridker (1976:98-153), and Birdsall et al. in Hauser (1979:211-295). The situations in Kenya and Tanzania are particularly well described. For Kenya see White et al. (1972), Hanger (1973), Berger (1974), Moock (1976), Oboler (1977), Pala et al. (1975), Pala (1978), and Stichter (1977). For Tanzania, see Jellicoe (1978), Fortman (1977), Bader (1975), Brain (1976), Mbilinyi (1977), O'Parr (1975/76), Swantz (1977), and Storgaard (1975/76). The case descriptions permit fairly direct comparisons, as between the Berger and Jellicoe evaluations of women's programs, or the similarity in the disadvantaged situation of women in rice irrigation schemes, shown by Hanger and Moris in Chambers and Moris (1973) and by Palmer (1979) for the Nemow scheme in Indonesia.

These field studies document the structural reasons why women in many places have been neglected in general programs for rural development, and suggest that their relative position may be deteriorating as a consequence of modernization. Structurally, women are often accorded the status of legal minors within landholding and property systems, sharing with the landless poor and refugees an invidious impediment—they can only control land, livestock, and permanent property through somebody else (usually a father, brother, or husband). While they may interact with other women (though even this is sometimes proscribed under traditional custom), they may not initiate contact with outsiders except through some male "gatekeeper" (McCarthy 1977). Even where women are more independent they may have insufficient time for attending public meetings of the kind emphasized in LDC extension work. A woman responsible for children, for the household—cooking, washing clothes, carrying water, gathering firewood, and marketing her own produce—and for some farm tasks is under severe time pressure.

The division of labor by sex is fundamentally reciprocal and asymetric. The goods and services exchanged between men, women, and children are neither of equivalent value nor constant over time. A woman's security in the family and the various compensations she enjoys vary according to the stage of the homestead. Because the things being exchanged are so basic to everyday life—sexual access, domestic services, shared food, and rights to livelihood and income—once price-governed exchange begins to intrude or the system of social obligations (which protect reciprocal exchange) breaks down, serious consequences can result. The uncoupling of reciprocally-based exchange which is affecting the domestic economy around the world may have quite unforeseen side-effects.

The Common Problems

Researchers have only recently come to see that "development" tends to increase the responsibilities which rural women must bear. The negative effects are not universal, but in any given system they are *cumulative*. The problems which may affect women include:

1) Under migrant labor systems, men will often be absent from the family during the time when a woman is bearing children and needs help the most. The woman may have to share savings with another distant household, and may be forbidden to make major improvements to the farm on her husband's behalf.
2) The breakdown of the extended family removes older female relatives from the household, and greatly increases pressures on women if they have infant children living at home.
3) Agricultural research and extension programs large-

ly ignore the traditional food crops which are of vital nutritional significance to women and their families.

4) Scarcities of land and of fuel which follow from rapid population growth affect women directly, since they are often responsible for finding firewood and growing food crops.
5) Many cash crops introduced to modernize peasant farming are labor intensive. They would not be profitable *unless* "free" family labor is available. Women must often assist the men in weeding and picking crops whose proceeds are turned over to the man without regard to the woman's contribution.
6) The break-up of the nuclear family leaving a woman responsible for her children and without a permanent claim on resources is becoming the predominant pattern in some peri-urban areas. This means that women are denied access to external financial support needed for household modernization—one reason why "squatter" homes the world over are so squalid—in a situation where goods such as water or garden space must now be purchased.
7) Mass production immediately affects the market for various traditional crafts—pot making, basketry, weaving, sewing, beadwork, etc.—which women could undertake to earn their own income. Production sometimes continues for tourist demand, but the nearly universal decline of craft production disproportionately affects women's welfare.
8) Mass primary education removes from the household some of the older children who traditionally tended the younger ones and helped their mothers by carrying water, herding goats, or collecting firewood. At the same time the woman must now buy school uniforms and keep her children fed and clean.

Finally, there is the direct barrier which women often face in many development programs and schemes. Only men are full members able to allocate benefits as they choose.

We can think of these tendencies as comprising three, parallel trends: the domestication of women (Rogers), the feminization of agriculture (Cernea), and the marginalization of the household economy. A modern exchange economy based on buying and selling destroys reciprocal exchange, but it does not necessarily provide equivalent benefits for women. It is not difficult to see why traditional "women's programs" with their focus on craft skills (rather than on markets) and on household knowledge (rather than on resources) have so little impact in ameliorating the broader impacts of modernization. We may even encounter a tragedy of the commons situation, where the short-run decision matrix favors actions which in aggregate make everybody's situation worse. A woman without security for the future may despite the increased load during the first years aim to have many children, since they will subsequently care for each other and constitute her own pension plan. As in the case of school leavers or the rural poor, the long-run resolution of women's problems requires fundamental structural alterations to the entire economic system far beyond what many LDCs will at this point seriously consider.

Short Run Administrative Remedies

There are steps that can be taken to ameliorate the impact of current trends. *First*, women can often be accorded the status of heads of household by purely procedural changes, without overturning the social system—e.g., listing them as owners of land or crops for the purpose of receiving farm loans or being registered in a co-operative. *Second*, support of family planning to allow women choice in the number and spacing of their children is required. In conservative social settings this may mean working with rural women's groups and the midwives to circumvent male gatekeepers. *Third*, special measures can be taken (as they are these days in many countries) to recruit female extension workers. *Fourth*, extension administrators can design program content to cross the usual sex-linked subject barriers: nutrition education for men and crop husbandry training for women. *Fifth*, much more attention can be directed towards improving the efficiency of household cooking and water transport, the two tasks which occupy so much of a woman's time. *Sixth*, agriculturalists should be encouraged to take more seriously those key enterprises which make such a large difference in family welfare: goats and pigs, as well as the variety of horticultural crops which can be grown to supplement family nutrition. *Seventh*, agricultural economists should be put to work devising horticultural systems which would support a landless household from the produce of its houseplot. *Eighth*, demographers should be prodded to look more closely at the characteristics and needs of single-parent families in rural communities. *Ninth*, economists in the capital city should be sensitized to stop issuing import certificates for machinery which displaces existing rural crafts. And, *tenth*, ministries of education should plan their school schedules to release older children during the times of peak labor demand in the cropping cycle so that the mothers have help at home.

Most of these are administrative measures. None requires sweeping socio-economic changes, nor for the same reason will they yield permanent solutions. But at the least they would make daily life more tolerable for both women and the rural poor.

Conclusion

Our review of the foregoing technical functions lays the groundwork for certain observations of a summary nature. *First*, it is apparent that rural development must

deal with an array of complex institutional structures. Many of our summary categories contain two or more distinct components—e.g., "agricultural education" includes farmer training centers, school-leaver training, school agriculture, and professional and technical training. A complete listing of distinct possibilities for projects would comprise at least one hundred fifty and perhaps up-to three hundred categories!

Those unfamiliar with the situations in LDCs do not realize that most of them (even the poorest ones) operate over a hundred types of rural development institutions. And the differences in operational requirements by type are large: contrast, for example, the different needs of seed multiplication units, farmer training centers, an artificial insemination service, or ox-team training units. Thus it is not that what is being written (mostly by economists) about rural development is *wrong*—rather, it is so vastly oversimplified that it creates a misleading image of the nature of rural development itself.

Second, the on-going commitments of most developing countries to a variety of types of rural development projects contrast sharply with a tendency towards fads in technical assistance (a problem we examine in a later chapter). The range of project types spans a fairly wide ideological range. During times when ideological purity is being stressed certain important components in the overall rural development process may be neglected (as happened to China's agricultural research institutes during the cultural revolution). We also observe a wide range of performance *within* project categories, suggesting that the presence or absence of a given type is not enough: one must know the quality of organizational effort before one can assume that output (downstream) benefits will be realized.

Third, project types often carry with them commitments to particular technologies. The linkage may be overt and determined, as when the whole approach depends upon a particular mechanism (e.g., an artificial insemination service). Or it may consist of a family of procedures imported from elsewhere to accomplish a given function (e.g., range management). Or a choice of technology may be possible, in which case field units and donor agencies follow their own inclinations. Developing nations owe a considerable intellectual debt to Schumacher's intermediate technology movement, and a vote of thanks to OPEC for having finally made apparent vital issues which accompanied technology choices all along. The "off-the-shelf" metaphor beloved by economists is indeed applicable to canned goods which are consumed and thrown away, but unfortunately to little else.*

In a poor and small nation the choice of technology is beset with extraordinarily complex issues. Three of them, long overlooked, concern: the match between a new technology and the systems' capability in an LDC, the pattern of energy demand entailed, and iterative impacts. Economists did highlight the issues of factor proportion (the distinction between land, labor, and capital-saving technologies is very useful) and foreign exchange loss. All told, these ramifications make it highly desirable that linkages between project types and particular technologies be carefully assessed.

Fourth, we often encounter multiple institutional models for accomplishing a given technical function. Management training is broadly similar the world over, but if you get Israeli experts you will be given a National Institute of Productivity; if American, a Management Advisory Center; and if English, an Administrative Staff College. The presence in a country of well defined and competing institutional models is a complicating feature which usually escapes comment. It can have both positive and negative influences on rural development. On the positive side, having a clear-cut model—e.g., a "folke development college" for adult farmer training (staffed by Scandinavian experts of course!)—insures that most of the necessary components will have been identified in advance. It may also secure the enthusiasm of a staff which believes in the efficacy of that particular type of institution. If however a country already has a locally derived model—e.g., in Kenya, a Farmer Training Center instead of a folke college—it would seem sensible to stick with it. Multiple models lead to overlap and waste, and perpetuate petty chiefdoms within the interministerial network of competing institutions. It may also divert attention from systematic efforts to identify and correct weaknesses within the older institutional arrangements.

Fifth, the effects of individual project types can be *either* positive or negative—sometimes very much so—depending on the quality of internal administration and the linkage of a given measure into a larger complex of rural development policies. Co-operatives are neither "good" nor "bad" as a type of development policy. Most policies have face validity and can be made to yield positive results in some settings. What we need to know are the conditions which cause a reversal of valence in particular policies, e.g., when co-operatives are linked to high value crops, progressive land tenure, and responsive pricing they can be quite beneficial; alternatively, if made a device for rural taxation and the aggrandizement in power of local elites, they can be quite harmful. There is a prima facie case for employing a contingency approach in policy analysis.

Sixth, we need to pay more attention to spatial and temporal linkages between project types, what might be termed project *congruence*. The sequencing implicit within project types needs to be made overt: one would hardly proceed to offer crop credit before a viable cash crop exists, or encourage fertilizer production before feeder

*Cf. the cogent criticisms contained in a minority report to the Eckhaus NAS volume (1977), *Appropriate Technologies for Developing Countries*.

roads. But project incongruence can be manifested in more subtle ways: it can be disastrous to link loan financing to high risk dairy enterprises. In East Africa I have several times observed the placement of farmer training institutes in the most backward districts in *advance of other agricultural measures.* On closer inspection one can see that training is seldom a critical bottleneck in such settings. High value crops that show a clear return to management do not yet exist; localized recommendations that can be conveyed by instruction are lacking; and if farmers do adopt generalized recommendations they quickly discover the prevailing imperfections in transport, marketing, input supply, and demand. What we have lacked is a systematic basis for determining *which* rural development components are the limiting factors in given settings and at different stages of development. Because of the great diversity of project types, it is quite possible to make heavy investments which a more sophisticated awareness would show are foredoomed to failure because they do not address the key factors at each stage.

Seventh, in dealing with various technical functions the administrator encounters professional ideologies which have the effect of making each kind of project appear essential. Technicians invest several years of their life in advanced academic training. They become socialized into the belief system of their field, which always regards itself as being universal and scientific. The various technical professions set high ideals for practitioners, and thoroughly justify their existence. But technicians are neither taught how to choose among alternative functions, nor to weigh how much of their own function is necessary for accomplishing typical tasks. They resist being judged by an external observer who may not share their technical beliefs. The administrator must be prepared to make such judgements. Since *all* major program types enjoy face validity, we need methods for selecting among them in given settings.

Finally, learning from comparative experience cannot be accomplished easily within a single country. Usually an LDC will have standardized its approach according to a model which becomes official policy. Analytic scrutiny designed to measure performance will put senior officials on the defensive. They will reaffirm the essential correctness of whatever policies are current. It is also harder to disentangle general lessons from particular cases when the sample consists of only a few organizations. An excellent way to begin program learning would be if the international institutes of agriculture (IRRI, ICRISAT, etc.) would take over the role of providing the lessons of comparative experience on the behalf of the interested LDCs. The book by Chandler (1979), a past director of the International Rice Research Institute, illustrates the type of product we should aim for in each of the major areas of technical expertise.

CHAPTER SEVEN

Ideologies

Approaches to Development

The Costs of Ideological Purity

The Problem and the Imperative: Reconciling Ideologies

Under the broad umbrella of rural development we encounter several competing ideologies. We have: the "*top-down*" *or bureaucratic* approach, the "*outside-in*" *or commercialization* approach, the "*bottom-up*" *or participation* approach, and the "*inside-out*" *or mobilization* approach. I term these *ideologies* because they derive from underlying beliefs about development, they are internally coherent, and they are largely unfalsifiable. They pose different approaches to action: different starting points for intervention, different organizational methodologies, different financing, different interests that take priority (nation, district, village and class), and even different definitions of development (material wealth, client satisfaction, social well-being, and group solidarity). These differences are shown schematically in Table 7:1. The aims of administration under these ideologies differ. The penetration ideology which predominates in technical assistance and this book equates them with implementing programs. The commercialization ideology talks of offering services. The participation ideology emphasizes solving problems; and the mobilization ideology stresses raising consciousness. These are the belief systems which underlie the choice of development strategies.

"An ideology...provides the believer with a picture of the world both as it is and as it should be..." (L.T. Sargent, quoted by Kramer, 1975:510). Marxist writers hold that ideologies play a functional role in social interaction and reflect underlying interests. Policy analysis itself can be viewed as a form of ideology (Kramer 1975, Horowitz 1979). The kinds of interventions one considers depend heavily on one's image of rural development and beliefs about how it can be realized.

An important implication of the four ideologies is the *interests* to which they give priority. There is no overarching paradigm to reconcile these actual or posited interests. If you start from the macroeconomist's view of the world, you inevitably weigh the interests of the state above all others. To the community developer the community's survival merits first consideration. The entrepreneur looks to the market as the key sphere. And the radical organizer assumes that class interests are what count. A major flaw in all present modes of analysis is their failure to acknowledge that interests may diverge at different levels: what is good for the nation may be disastrous for the community. The Marxist Naxalites in India might have felt it necessary to begin liquidating local leaders, but they should not have then expected to retain their popularity within the community (cf. Reddy 1977).

The policy analyst's image of development will dictate his approach, and the points within the client system where intervention is sought. Because ideology shapes approach I have labelled the four modes of analysis discussed in this chapter "approach ideologies". They tell the practitioner where to begin, and in so doing strongly influence the organizational parameters of the resulting field program.

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TABLE 7.1
Ideologies of Development

CHARACTERISTICS	I.	II.	III.	IV.
Aim:	*Penetration*	*Commercialization*	*Participation*	*Mobilization*
Direction:	Top-down	Outside-in	Bottom-up	Inside-out
Agency:	Bureaucracy	Companies	Community	Party
Level of interest:	Nation	Market demand	Village	Class
Goal definition:	Material well-being	Profit & client satisfaction	Social well-being	Group consciousness
Rationale:	Economic development	Microeconomics & innovation theory	Community development	Underdevelopment theory
Starting point:	Planning	Market survey	Need identification	Class analysis
Approach:	Funding request to the center	Organize company in district	Organize groups in locality	Organize cells in localities
Personnel	Outside experts, some locals	Local entrepreneurs, some help	Local leaders, some help	Local party cadres & sympathizers
Role of outsiders:	Formulate request	Start-up loan	Serve as catalyst	Safeguard purity
Major aim:	Implement programs	Offer services	Solve problems	Raise consciousness
Financing:	Credit from center, start-up grant	Self-financing from fees	Self-help raising of local funds	Party funds & brotherly regimes
Project emphasis:	Infrastructure & production projects	Equipment, new crops & inputs	Social service facilities	Production co-ops & group organization
Evaluation criteria:	Targets achieved	Innovations spread	Problems solved	Regime changed
Time horizon:	Short-medium term: 2-5 years	Short term: 1-3 years	Medium-long term: 3-10 years	Long term: 5-50 years

A. Approaches to Development

Penetration, or the "Top-Down" Approach

The "top-down" view of development suits ministries of economic planning, the World Bank, technical assistance agencies, and socialist regimes after the revolution. It sees the task essentially from the national level. Bureaucratic action begins with an expert analysis of the problem and proceeds with implementation based on a request for funds (usually necessitating more expert assistance). It is totally organized and controlled from the center. Econocrats are the practitioners, and macroeconomics provides the theoretical underpinning.

According to this rationale development derives from capital investment. Investment depends on the volume, direction, and propensities of economic exchange. In a poor country possibilities are limited. Given the shortage of investment funds, outside assistance from IDA or COMECON are welcomed. These development resources are too critical to be left to local allocation, and should be dispensed from the center in accordance with rational criteria. The flow of investment to local projects should be based on a country's stage of development and a systematic economic analysis of inter- and intra-sectoral needs.

Since investment alone is not a sufficient condition for creating development, extra attention should be devoted to insure that all needed inputs are being produced (balanced growth) and that the necessary linkages will occur (interindustry matrices). Subsidiary means in scarce supply must be subject to planned control and perhaps state intervention. These include manpower and recurrent finance. In a poor country a "breakthrough" strategy is sometimes advisable, wherein major resources are concentrated on one sector in anticipation it will stimulate upstream and downstream changes to get development past the "take-off" stage into self-sustaining growth. The state is the principal actor. It stimulates, plans, oversees, and regulates growth by allocating capital, controlling the money supply, regulating terms of trade, and creating incentives to induce appropriate responses in the various sectors of the economy.

In regard to the rural sector the penetration ideology sees effective projects as the engines which drive the cumbersome machine into the sky. At the local level the role of the state is to provide specialists to help people formulate requests, to supply managers who can implement projects once funds are committed, and to link local units into a coordinated national effort. The main obstacles are the lack of capital—solved by loan financing—and the lack of expert manpower, solved by adding bureaucratic staff. Planning, finance, and professionalism are the keys to the kingdom. In sum, this is the conceptual foundation underlying the technocratic strategy of economic development.

Commercialization or "Outside-In"

The "outside-in" or commercialization viewpoint is laissez faire doctrine in its philanthropic and contemporary guise. Ellis has coined it the "Sears Roebuck Model" of development in an unpublished paper. Whether carried out by private firms or decentralized public services, the ideology emphasizes the free choice of clients to choose the services they need. It sees the task of developers from the perspective of a town and its hinterland, perhaps equivalent to a district or zone (not for theoretical reasons, but because of operational considerations in establishing new production services). One task of development is to stimulate demand by modernizing traditional agriculture. Once agriculture is transformed, production services will become in large degree self-supporting through fees paid by clients. The key constraint is the lack of monetized exchange. Thus the commercialization of traditional crafts is necessary and the spread of specialized market production desirable.

At the local level the aim is to make room for entreprenurial talent. Anything which predisposes farmers to reject innovations—values, group sentiments, social obligations—becomes a barrier to be overcome by a "change agent" inserted into the rural community by the extension service. The state should also assist in forming and expanding agri-business, either as companies (under capitalism) or parastatal units (in mixed economies). More generally, development is essentially the opening up of traditional communities to the outside economy, a structural process whose long term gains will outweigh temporary social costs. The ideology insists that farmers are essentially rational but constrained by market imperfections. Their activities can be viewed analytically as those of a multi-product family firm (making it legitimate to apply maximization models from micro-economics). It classifies farmers according to their innovativeness, and pays close attention to the character and sequencing of innovations. Agribusinessmen, county agents, and rural sociologists are the practitioners. The analytic foundation consists of innovation theory and microeconomics, along with a stiff dose of modernization theory. Some examples include McClelland and Winter (1969), Rogers and Shoemaker (1971), Inkeles and Smith (1974) and Schultz (1964).

From the Bottom Up

The "bottom-up" or participation ideology originated in the reaction to colonial bureaucratic failures in the 1950s. It takes the local community as its frame of reference. It

argues that the efficiency of top-down approaches is illusory: When one observes actual cases one finds that projects deteriorate almost as fast as they can be constructed because local people lack the means or interest to maintain them. When success is occasionally achieved, closer inspection shows it to be the result of enlisting a local leader's influence.

The participation ideology insists that people will not cooperate until they see a good reason to do so. The role of the outsider is not that of an expert telling people what to do, but as a facilitator working with them to analyze problems and find solutions within their own reach. Apparent causes are often not the real reasons for local incapacity. For example, the pump breaks not because people are poor—since they can if they so desire raise the funds to buy a pump—but rather because they don't understand how to use it and don't feel responsible for it. Instead of the dependency syndrome (or "hidden curriculum") created by one-shot top-down interventions, the aim of development should be to strengthen organizational capabilities within each community.

This ideology argues that local knowledge and expertise are often already present but untapped within the community (school teachers, artisans, etc.). Even poor people can raise considerable amounts of capital when they want the service to be provided, cf. Kenya's Harambee secondary schools. When the people themselves raise the funds, they will identify with the facility and protect it, interpersonal trust will be increased and local leadership strengthened, the people will gain confidence that they *can* act together to solve pressing needs, and the process can be repeated in other villages. The approach is called dialoguing, and is based on the writings of Friere and Illich as well as the nonformal education literature. Practitioners are generally volunteers, missionaries, assorted ex-priests, and coverted radicals. This approach is highly congruent with "barefoot doctors," adult education, self help, appropriate technology, and village development; often it includes emphasis upon marketing cooperatives.

Mobilization

The "inside-out" or mobilization viewpoint originated when Marxists began to examine the problems of modernization. It is epitomized in the writings of Andre Gunder Frank (1980), whose role as spokesman for "underdevelopment" theorists has been influential. It takes the exploited peasants as its frame of reference, and documents how their relative position both within their nations and internationally has worsened as the direct result of participation in the international exchange economy (a view many non-Marxists also hold). The mobilization view argues that the situation of small producers who must compete with many others in a free market will steadily deteriorate over time. The industrial states can play them off against each other, and they cannot afford to withdraw from the market. Internally, underdevelopment theorists stress that the modern sector in an LDC represents an enclave of great privilege which allies itself with external capital against the interests of its own subsistence producers. The bureaucratic salariat using the top-down ideology rationalizes its own control over the rural sector and entrenches its ability to tax peasants' primary production. By believing in development as nationally defined the peasants fail to perceive the true sources of exploitation which they experience. The purpose of mobilization is to raise peasant consciousness, and to build a solidarity which will enable them to defend their interests as a class and thus ultimately usher in the revolution.

Under the mobilization philosophy the revolutionary starts by working from within and must disguise the intention of overthrowing the regime ("inside-out"). Committed party members are inserted into key positions. Others organize local cells where the hortatory mode is much in evidence. In their meetings participants learn to distinguish "true" from "false" development, and are encouraged to expand the network. If the Americans send military advisors the movement blossoms. "True" development will occur after the Revolution. It is defined essentially in negative terms as the removal of exploitation. Meanwhile party leaders defend the exercise of power from within, if necessary covertly, as a requirement for mobilizing the peasants. The ideology of mobilization has much in common with the participation approach, which is seen as a danger since genuine participation decreases peasant dissatisfaction.

B. The Costs of Ideological Purity

Berger depicts these four ideologies as "pyramids of sacrifice" (1976). Each promises a pathway to the sun, if the individual will just follow instructions. We are dealing with complex belief systems supported by elegantly argued premises. They are rich enough intellectually to sustain sacred literatures with high priests, novitiates and miracles on offer for the unbelievers. Each, when put into effect, will at first yield convincing results. Look at the impact of the first bridge across a major river, the first high value cash crop in a poor community, the first project people do for themselves, or the first instance when the landless are given farms. But in these hot and dry times only the priesthoods still believe they control the sun.

Bureaucratically Implemented Development: the Problems

Because of Friere, Illich, and Schumacher the weaknesses of bureaucratically implemented development

are becoming widely acknowledged (though generally disregarded):

1) It leads to a proliferation of bureaucratic structures with high overhead costs and limited actual contact with farmers.
2) In an LDC context these structures become ossified and subject to pronounced goal displacement which generates fictitious reporting.
3) It is insensitive to problems of scale, and automatically favors large "efficient" units without determining if the same judgments would obtain if multiple criteria of assessment were applied.
4) It assumes introduced technology will be either neutral or beneficial in impact, leaving the social system to pay for unwanted externalities (population, unemployment, etc.).
5) It is based on a static "banker's" concept of material wealth and education, and fails to create the capability for maintaining and augmenting facilities, with the result that they deteriorate almost as fast as they can be built.
6) It displaces small-scale social mechanisms with standardized bureaucratic units linked upwards and not downwards, and thus reduces bureaucratic accountability within communities.
7) It assumes people already in a monetary economy, and ignores the effect of changes on existing craft production.
8) It neglects local knowledge and expertise in favor of processed "data" and outside advice, and so frequently mismatches projects to locale (so the right things are done in the wrong places).
9) It fails to tap existing savings and motivation, making people more alienated after "development" than before.
10) It encourages people to accept an emergent class structure and their increased *dependency* on outside sources of energy, finance, and expertise as necessary costs of development.

In sum, these traits constitute the hidden curriculum which local communities absorb from the tutelage of national economic development.

We must be careful to distinguish bureaucracy in the general sense from its virulent form as it becomes rationalized to fit the top-down ideology. Citizens of developed nations tend to vent their criticisms on the public services generally—"too much government"—when in fact the root cause is the change *within* government *and* business which has occurred mostly since World War II. Around the globe the poorer, marginal communities are becoming increasingly disadvantaged as the direct result of their incorporation into the standard grid of the modern state—a conclusion Lipton reaches from a broad sample of village studies (1977).

Many Western economists would disagree with this pessimistic view. But it does seem that if the top-down approach is implemented without attention to counterbalancing mechanisms it results in unintended tragedies for the rural sector. Examine the impact of the snowmobile on Skolt Lapplanders (Pelto 1973); the effects of urban growth on Basque Farmers (Greenwood 1976); the sedentization of the Barabaig in Tanzania (Kjaerby 1979); the effect of mechanization on Sri Lankan fishing villages (Alexander 1975); the "development" of Appalachia (Greenberg 1974, Perry 1972); or the joys of living like the Bikinians under the governance of the US Navy (Kiste 1974). In the US the absence of a prefectorial structure appears to leave rural communities more vulnerable to economic dislocation, and diminishes the lasting impact of investments that are undertaken (cf. Smith et al. 1971, Schensul et al. 1968, and Hackenberg 1976).

A growing awareness of the above tendencies in the early 1970s led to a redefinition of target groups by the major donors. Most added as an official objective of their rural development programs to broaden participation by smallholders, women, the landless, and the poor. The International Labour Office began promoting a "basic needs stragegy" (Srinivasan 1977, Selowsky 1979, and Ghai, Godfrey and List 1979). The USAID "New Directions" strategy was explicit about avoiding the faults of the earlier top-down ideology. The target group was specified as "subsistence farm families, pastoralists, landless laborers, unemployed market town laborers, small-scale nonfarm entrepreneurs, and craftsmen" (cf. Rondinelli and Ruddle 1978:24). It also explicitly stressed "'bottom-up' planning and local participation in rural development."

Participation Approaches: the Problems

There is abundant evidence from the earlier experimentation with community development and marketing cooperatives that a participation ideology is no panacea. Aside from the early block development programs in India and the Barrio self-governing councils of the Philippines (see Valsan 1970), the epitomy of "bottom-up" development has been Kenya's Harambee ("self-help") movement. Mbithi has published a number of studies in Kenya on this phenomenon. In addition there is Holmquist in Hyden et al. (1970:201-29), in Barkan and Okumu (1979), and Winans and Haugerud (1977). To those of us who have observed the African self-help movements in the field it appears that this ideology becomes problematic when it becomes the predominant approach to rural development. Paradoxically, some of its weaknesses

destroy the very benefits which underlie participation as a major goal. The problems include:

1) The stress on creating viable local organizations runs counter to the individualizing effects of socio economic change.
2) The bottom-up approach often treats organizing costs as free, and may involve a substantial hidden subsidy as well as risks of collapse when support is withdrawn.
3) Some types of projects such as deep-well drilling or disease eradication require either specialized resources or mass compliance irrespective of local interest
4) The approach idealizes the efficiency of the "village level worker" or "barefoot doctor"; in fact it generates technical demands beyond the ability of paraprofessionals.
5) Allowing communities to define their own priorities leads to a proliferation of social services without guaranteeing the productive fiscal base to support them.
6) The capital costs raised locally are actually less significant than the recurrent obligation to pay salaries and operating costs, but these are almost always left for the central government to pay.
7) Facilities constructed with self-help funds often do not operate effectively, and thereby devalue the currency contributed by the villagers (Geddes in Chambers and Moris 1973:279-284).
8) Local participation unless tightly supervised puts the public program at the mercy of whatever interest groups are already organized in the local community, e.g., exploitative local elites.
9) In opening the door to community initiative, the government loses control over the location of new development which in the longer run goes to the richer districts and communities.

From an administrator's perspective, it is more than enough trouble to attempt to reconcile these two ideologies (the Top Down and the Bottom Up)—as Huntington (1976) observed in his book on political participation in LDC's. Thus I am reluctant to point out there are still the other ideologies with which to contend. Both the "outside-in" view of modernization theory and the "inside-out" view of dependency theory take a strongly instrumental attitude towards rural communities. Both offer reasons why the temporary pain of breaking accustomed social, economic, and political linkages must be incurred as the price of ultimate development—here Berger's critique of radicalism makes entertaining reading (1976:76-113). Both view the top-down ideology when used by opponents as the ultimate enemy (international capitalism vs. international communism), while remaining silent about their own close links to top-down penetration.

Commercialization: the Problems

Within capitalist approaches the potential conflict between top-down penetration and outside-in commercialization is usually resolved by recourse to macroeconomics to explain the state's role and microeconomics to justify the entrepreneur's role, with inter-industry matrices to reconcile the two. It is really quite astonishing how long it took economists to discover that trickle down effects don't often occur. The price of a tacit alliance between Keynesian macroeconomics and classical microeconomics is the willingness to let the entreprenurial argument pass unchallenged (Lichtman 1966). Among sociolologists increased commercialization seemed a functional requisite for creat- the modern state. Nobody asked what actually happens to rural communities during this process; they assumed monetization and accompanying technological changes were ultimately for the common good.

Lichtman's compelling statement of the inadequacies in the pure theory of the competitive market should be compulsory reading (1966:5-17). He points out that the market cannot register negative concern, cannot accommodate the preferences of future generations, and is opaque to social value. The specific deficiencies we see around the world when market forces are allowed untrammeled expression are basic defects in the very logic of classical economic theory.

The aberrations which accompany an over-reliance on market mechanisms to encourage development include:

1) Insufficient attention to the arbitrary nature of pricing for non-renewable resources, which tend to be sold by reference to harvesting rather than replacement costs and therefore become rapidly depleted if harvesting technology improves (as it has).
2) Individually realized benefits are made the indicators to guide technological change, without taking into account that the individual can externalize costs and the technology itself may have a system-transforming impact with negative overall effects.
3) A lack of concern with distributive justice, so that temporary accidents of fortune—which nomad holds the rights to what piece of land in the oilfield—have a disproportionate impact on the well-being of families and classes.
4) It is not recognized that communities may require self-sufficiency in certain resources and services; instead, integration into the larger market is automatically encouraged even if the community loses control of the terms of trade and over time becomes severely disadvantaged as a consequence.
5) The corrosive effects of mass-production

technology on employment, local crafts, and rural welfare are not admitted. Unless counterbalanced politically, market mechanisms produce increased differentiation and tend to shift benefits away from small-scale producers and marginal communities.

6) Under high-risk agriculture, market mechanisms can rapidly dispossess farmers of their land. After a single adverse season they usually must obtain credit to continue. But the ideology disguises the fact of arbitrary dispossession by extolling a mythical efficiency of the large-scale operators.

7) By eulogizing economies of scale the market ideology diverts attention from the managerial diseconomies which occur when large producers begin to acquire monopoly power within the system. In general, the approach is insensitive to negative consequences which accompany unnecessary capitalization and uncontrolled increases in scale.

8) Changes in the locus of taxation and the accompanying benefit streams are generally ignored, so that losses which accrue to the community because of shifts in location are not taken into account.

9) Most important, the approach assumes that benefits trickle down to the general population without providing specific mechanisms to insure this happens.

Socialism: the Problems

These faults are now well recognized. Most European and Latin American intellectuals assume that socialism represents the only logical alternative. But socialism, too, has its deficiencies when observed under actual field conditions:

1) Any class-based strategy which emphasizes ideological commitment will be deeply divisive within local communities, often alienating groups which share common aims. It seems that socialist leaders cannot resist the temptation of building their personal followings by attacking others who differ only slightly in belief; such are the perils of secular religion.

2) Marxism remains strongly ambivalent about peasants, and wastes an enormous amount of energy trying to classify them and divide between "good" and "bad" peasants, the poor vs. the exploiters. In general, it fails to tap the energies of local innovators and can easily slip into regarding them as opponents.

3) The need to guard the ideological purity of the movement, with its elitist concept of the "cognoscienti" who define policies at the top, leads to a monolithic organizational structure that excludes choice at the bottom, and over time causes an atrophy of local interest.

4) The technological efficiency which is claimed to result from joint production does not occur in the tropics, because of higher coordination costs, higher risks, and the lower potential for mechanization. When it does not, the movement resorts to increasingly technocratic and rigid planing measures which further accentuate the widespread disillusionment of the peasants.

5) There is a tendency to abolish market mechanisms (seen as competitors to the revolution) *before* the administrative capability for flexible planning has been established, with the effect that both productivity and efficiency fall off rapidly. These ills are then blamed on opposition from the covert supporters of the old regime.

6) Because the party does not genuinely reflect peasants' interests, it often allows the costs of its own mismanagement to be externalized onto the rural sector, and then blames the masses for being apathetic.

7) The hortatory mode encourages people to set unrealistic targets and gives promotions for fervor rather than expertise; over the longer run it creates a system which canaot rely on its own intelligence and which chronically promises more than it can possibly deliver.

8) Disengagement from capitalism is urged on the poorer peasants without regard for their lack of alternative markets and without recognizing that some type of interdependency occurs under any form of monetized exchange.

9) The key importance of labor discipline in the early stages of development is not recognized ideologically, and in practice workers are often encouraged to form demands which destroy labor productivity.

10) The ideology justifies the pursuit of power as being necessarily for the common good, providing a cloak for excesses and a leader's personal ambitions. The constant reference to workers' solidarity hides the lack of systematic analysis as to how the rural economy will be run after the revolution, with the effect that the bureaucratic "salariat" which grows up afterwards soon reverts to top-down approaches for economic development.

Ideology, Policy, and Trouble

Any ideology can conceivably lead to policy and programming errors in one way or another. Apart from overt terrorism the two most potent destablizing factors induced by government policy are probably an acute scarcity of

basic or highly desired goods, and access to uncontrolled supplies of arms. Let me illustrate by reference to the recent Tanzanian experience.

In 1974-76, a combination of rising fuel prices and continued drought left the nation short of basic goods just at a time when the party had decreed mass villagization (with the effect that standing crops were often destroyed).* A black market did emerge, but it was sporadic and loosely organized. In addition, the government's effort in assisting the Zimbabwe liberation struggle gave added legitimacy to its appeals for sacrifice. In 1979-80, when Tanzania was attempting to supply much of Uganda's needs, a renewed bout of scarcities occured. This time the black market took root rapidly, drawing supplies from the government's own distributive network. The party then blamed Asian traders for hoarding—which they probably were, since it was rumoured their trading licenses would be revoked—thereby compounding the public's lack of confidence in the formal system. Once a large proportion of supply begins evading official channels, the government's resupply efforts cease to be effective; goods disappear from the distribution points to replenish the hoarded stocks of the privileged.** In the Tanzanian case the potential black market distribution network stretches all the way from Zambia through Rwanda, Burundi, western Kenya, and into the southern Sudan.*** Once public confidence in the official system is lost, almost the only way to regain it is to flood the country with a given category of goods far beyond immediate needs—the one tactic a poor country can ill afford. And each bout of renewed scarcities further decreases a government's limited ability to take effective remedial action, leading eventually to a military coup.

Thus the syndrome of escalating policy failure is not confined to capitalistically-oriented nations. Probably the initial stages are more frequently associated with poor socialist nations trying to achieve ambitious economic objectives with limited administrative means. It is true that socialist countries are more willing to adopt draconian measures against corruption and violence, but these same nations will nationalize housing and fuel supplies (thereby creating invitations to corruption) or distribute arms to the people's militia (thereby making it easy to steal guns). The moral tenor of socialist ideology in this regard does not recognize these dangers, just as in the past the US blindly supplied weapons that were certain to destabilize relationships within recipient countries over the longer run. Under either capitalist or socialist regimes, the ability to cope with scarcities and to control the use of arms depends in the last analysis upon the integrity of administrative resources. Such integrity is a product of sustained attention over several decades; once lost, it cannot be easily restored. In the African instances, the comparatively greater success of Kenya, Malawi, Botswana, and Ivory Coast during the 1970s would appear to be not so much an outcome of ideology (for these are all mixed economies allowing substantial amounts of public sector initiative), but rather the emphasis these nations have placed on administrative efficiency.

In non-socialist countries the contribution of the general administration—maintenance of security, regulation of trade, etc.—becomes apparent chiefly by default, when normal services break down and the economy begins to disintegrate. Peasant communities are able to survive an astonishing degree of economic dislocation, but eventually people begin to starve unless compensatory mechanisms come into play. Crises serve as thermometers to indicate the state of organizational health, but by then deterioration will usually be well underway.

To extend the medical metaphor, the disease syndrome usually evidences itself in four domains: general mismanagement, which reduces the likelihood of corrective measures; economic shortages through failure of the distributive systems; spreading corruption in which "personalismo" replaces procedural reliability; and a breakdown of economic and then of personal security. These pathologies do not appear uniformly, but once established they can become highly contagious. The infectious aspect is well understood by intelligent administrators; but their interlinkage is not sufficiently recognized.

These four types of administrative disability can also be viewed as successive stages, each fostering the next while simultaneously reinforcing the previous one. The farther a society moves down the sequence, the greater the difficulty in reversing the process. Once the social system *expects* a particular administrative pathology (such as scarcity or corruption), its emergence is facilitated. But because the transition is *systemic* and *gradual*, one can rarely see the junctures where one stage merges into the next. A government may not realize that temporary failures are becoming components in an on-going structure of failure until it is too late. The feedback linkages between these processes make them extremely resistant

*See Lofchie (1975, 1978) and commentaries in the same journal by Raikes (17:309-316) and Briggs (17:695-702). This issue is also dealt with by Migot-Adholla in Barkan and Okumu (1979) pp. 170-74.

**The classic account of agricultural black market emergence in a Western country is by N. Balabkins (1964) *Germany Under Direct Controls*, New Brunswick, N.J.: Rutgers Univ. Press, pp. 71-109. His illustrations of rapid emergence of a barter economy could be duplicated in various African nations today.

***In March-April of 1980 the supply of tires in Tanzania was so short busses and trucks were being abandoned on the public highways, a consequence of Tanzania's attempt to supply Uganda's needs. The rumours were that in Uganda these same tires were then sold on the black market to Kenya!

to reform once the syndrome of decay takes root. This situation also becomes an invitation to terrorism, as the effort required to further destabilize the nation is considerably less than that required to reverse the trend.

Actions which widen the gap between the intent of administrative action and probable outcomes can be the first step on a slippery slope. Once goals and outcomes begin to diverge widely we enter on dangerous terrain, precisely because our rationalistic modes of analysis assume a fairly close identity of purpose and action. In the poorer, socialist nations leaders sometimes deliberately set high goals to mobilize moral capital and stretch resources. To admit the likelihood of failure renders this tactic ineffective. But the resulting disparity can have even more costly consequences.

C. The Problem and the Imperative: Reconciling Ideologies

A major item on the agenda of scholarly analysis should be how to reconcile and balance opposing ideologies of rural development. Would it not be more prudent simply to jettison belief in favor of accumulating empirically tested truths? No, for several reasons.

First, for any poor nation such as Somalia or Burundi the concept of development must remain an ideal, very different from any statistical representation of actualities. The one novel resource a poor country has is the potential for devising better images of possible futures—"scenarios" if you will—and then finding steps leading in the desired direction. A strategy is not an analytic concept based on applied science—the failure of macroeconomics illustrates this. It should be viewed as a *packaging device* which relates many individual programs into a framework that highlights their intended future consequences. If a development strategy is to be a statement of *directions*, it must be a creative act of will and imagination, especially in the poorest nations. Once a strategy is formulated, individual programs acquire added resonance because they stand in complementary relationship to other parts of a larger system of social action. In rural development, where the programs are highly diverse, unifying themes to guide the specifications of details throughout the system are vital. Reforms are necessary, but reform alone is an inadequate base for achieving something better than the dismal futures now facing the poorer LDC's.

Second, projects also need a sense of mission. Rural administration in LDC's involves building effective organizations out of plain materials; we have said it takes maybe a decade before adequate results are realized. For field staffs implementing projects in such discouraging settings, a sense of mission is vital. The individual must believe that a different future is possible, despite negative evidence on every side. Belief systems concerning development cannot be created at will, but must be accepted from within the prevailing environment. If a given country has staffs who strongly support a particular approach, their idealism becomes a resource which should not be lightly ignored.

Third, each of the major ideologies does address particular problem situations with great force. There are settings around the world which seem made to order for one or the other of the existing belief systems. Powelson is probably correct in concluding that the longer revolution is postponed in the typical Latin American country, the higher will be the social costs for everyone when it eventually occurs (1972:274). For US Navajos, a stiff dose of nationalism may just save some of their energy and water resources, against almost overwhelming pressure of gigantic US commercial and governmental interests. For Tanzanian villagers a more effective approach to induced innovation and commercialization would be most beneficial. And for fishing communities around the world a participative approach to boat owning and management is possibly the only tactic which might yet protect them from being dispossessed.

Why Ideologies Need to be Reconciled

The need to reconcile ideologies can arise in several contexts. For the individual it occurs because the ideological underpinnings of specific project types are not commonly recognized. People are hired without regard for their beliefs about rural development, and a person may find that the approach being implemented is antithetical to his/her convictions about the proper way to proceed. We sometimes see this sort of mismatch when a volunteer agency provides a teacher for a large bureaucratic institution, where the individual volunteer is left with no possibility for positive interaction with clients. If so, it is far better to resign than to spend several frustrating years trying to reverse the momentum in a system that has another agenda to fulfill.

For the nation, some degree of reconciliation is imperative because nationalism is itself an ideology, probably the most powerful one of all. Perhaps the preponderance of top-down approaches to rural development derives from their high congruence with nationalistic assumptions. Nationalism tends to view centralized bureaucratic action as the logical way to initiate development. Since the two ideologies (nationalism and penetration) parallel each other so closely, *if* bureaucratic approaches were adequate there would be no reconciliation problem. But because top down approaches are not yielding intended benefits, we should recognize that other belief systems may be necessary—belief systems which conflict at various points with nationalistic assumptions.

The problem becomes most acute in administrative systems whose members subscribe to rival and even opposing ideologies. We saw in chapter two how important

an ideological underpinning is within reciprocally cohesive organizations, those which seem effective in mobilizing sacrifice and responding to changing circumstances. If an administrative system becomes internally polarized around rival concepts of corporate action, its capacity for reacting effectively can be destroyed from within. As Powelson notes, many Latin American nations are torn by the split between what he labels "productionist" (our outside-in) and "appropriationist" (our inside-out) ideologies (1972:273):

> Far more than lack of capital, this dissension constitutes their most serious cause of underdevelopment. *It underlies the inefficiency of government and business enterprise.* It obscures institutional goals...and it divides groups—such as unions and industrialists—that must cooperate in the successful division of labor. (author's italics)

Powelson suggests that neither ideology is likely to yield to the other, so the only hope of reconciliation lies in the emergence of a third alternative (1972:159-161). He draws from Hirschman (1963:234) the suggestion that a principal function of ideology is to appear to be the solution of a previously neglected (or "unprivileged") problem (e.g., agrarian reform as essential to solve a high priority "privileged" problem, e.g., balance-of-payments. Thus ideological reconciliation involves creating new theories of public action which widen the spectrum of problems that the polity is willing to address.

Dealing With Ideological Constraints

Can an approach system grounded in one ideology change its characteristics merely by restating its goals? The World Bank, USAID and the UNDP clearly assumed a leopard *can* change its spots when they announced their intention to integrate the poorest 40 percent of the rural population into the rural development process. The means they chose was a reformulation of program targets *without* any accompanying revision of customary structures and procedures for implementation. This decision assumes there is no immutable linkage between goals and the organizational structures for realizing them. Similarly with the green revolution: Can a capitalistically oriented package of farm benefits forestall the need to redistribute a society's production resources?

Korten points out the resulting paradox (1980:484). The new program goal calls for reaching small and scattered populations who are socially and administratively invisible. It espouses full participation of these missing clients in small-scale, poverty-focussed projects. But the organization itself relies on a 'top-down' approach methodology which starts with large-scale econometric planning, and then attempts to work through existing hierarchies to bring about a radical change in their own mode of operation. One is reminded of the example Cohen gives from northern Nigeria where in colonial times chiefs were directed to encourage mass literacy, which the people were told would help them stop cheating by the chiefs' tax collectors!

There are occasions when a shift in development ideology is imperative, but such changes do not occur easily. Most larger rural development programs require elements both of top-down coordination and bottom-up participation. The two ideologies are directly opposed on many questions of procedure, and it is usual for one or the other to predominate in the initial stage of the program evolution. The critical phase is reached when the field organization must now incorporate some features of the rival approach. On one hand, small scale projects working directly with villagers may show enthusiastic responses until the increased volume of activities makes them dependent on the umbrella of existing bureaucratic services. Then conflict with the national organizations may surface, and very complex organizational issues will have to be resolved. In Tanzania, for example, the grass-roots movement which was the nation's prototype for Ujamaa Villages (called the Ruvuma Development Association) experienced initial successes in a remote district. Then it came into such sharp conflict with regional authorities that it was eventually proscribed (Toroka 1969, Wenner 1970). It will be interesting to watch what happens as a third generation villagization program reaches a level of influence where villagers can challenge the wisdom of their top-down oriented administrative leaders. (Alternatively, a top-down technical assistance program may evidence dramatic results until the point where widespread involvement by villagers is required, and then suddenly its "success" evaporates.)

We need development ideologies. But let us view them in an analytically sophisticated fashion, recognizing that they are belief systems not subject to empirical validation. Each of the predominant ideologies of the moment is highly partial in its selectivity of the causal mechanisms it emphasizes. What one finds in many tropical nations is a complex rural environment where diverse field programs already exist and where more than one ideology is needed to explain current difficulties. My appeal is that we find ways to reconcile belief systems within a larger framework of national action, one that takes the interests of all levels—community, district, class, and nation—into account. Because of the mixture in levels, the results will not be conceptually tidy. Practitioners will find themselves "half-priest and half-plumber" (to use Anthony King's description of a democratic socialist). But that may well be what the current situation in rural development requires (Tummala 1979).

CHAPTER EIGHT

A Case in Rural Development: The Masai Range Development Project

The Range Management Approach

Beginnings of Range Management in Tanzania

The Masai Project, Phase I (1970-72)

The Masai Project, Phase II (1973-76)

The Masai Project, Phase III (1977-79)

The Masai Range Management and Livestock Improvement Project operated in northern Tanzania for ten years (1970-1980). That USAID was willing to fund a field project for a full decade is itself significant: It showed an awareness that it requires substantial time to improve traditional pastoralism. It also displayed high confidence in range management technology. The contention of this chapter is that the first premise was correct, but not realized in practice because of fluctuating political and ecological circumstances; the second premise was incorrect.

There are good reasons for making a livestock development project the focus of this chapter. It is a project I can describe from an insider's vantage point, having served both as the team's rural sociologist and then as its project leader. More important, livestock programs in tropical Africa carry higher risks of failure than projects based upon established technologies.

The Masai Project, with its focus on committees of elders organized within each Ranching Association (hereinafter RA), closely matches what one USAID official has suggested might be a general solution for modernizing pastoralism. See Weiss, Waterston and Wilson in Rondinelli (1977:115). The Near East Foundation assembled a qualified field team several of whom spoke Kiswahili, all holding their contracts with the Tanzanian government, not USAID. Yet, after a decade, many staff changes and two complete reorganizations, the project was deemed to have failed and USAID terminated its assistance. This chapter seeks to explain why, and in the process to illuminate the stresses which rarely get reported in official documents.

A. The Range Management Approach

Even among professionals there is confusion over what constitutes range management. A useful starting point toward clarification is the definition of *rangeland* provided by Pratt, Greenway, and Gwynne:*

> Rangeland can be regarded as land carrying natural or semi-natural vegetation which provides a habitat suitable for herds of wild or domestic ungulates. According to this definition, the greater part of East Africa is rangeland. Some of the present range area has a potential for agricultural or other development, but most is destined in the present state of technical knowledge to remain under range-use because its rainfall is scanty and erratic.

Much of Northern Tanzania falls within this category, lying as it does in a rainfall shadow created by adjacent highlands. When such rangelands are reserved for the economic production of domestic livestock, we are justified in speaking of range development as a distinct type of development policy. Abercrombie, one of the originators of the Masai Project, has defined range management in these words (1974:6):

> Range management is the science and art of planning and directing range use to obtain the maximum livestock production consistent with conservation of range resources.

What these authors imply is actually something separate from ranch development (and its linked subject, pasture improvement). The difference stems from a vast increase in scale when the manager moves from the individual farm (a ranch is basically an extended farm) to an entire land unit, even an entire district. Many improvement measures which the commercial ranch manager finds sensible—fencing, mechanical treatment of soils, paddock irrigation, fertilizer application, seeding of selected grasses, etc.—are simply out of the question when one must plan for half a million acres (200,000 hectares). In range areas the resources other than stock are usually publicly owned. The control of stock is achieved by relations with semi-autonomous producers. The manager tries to control the total environment, using the leverage afforded by the indigenous ecology itself (forage protection, the preservation of the more nutritious existing species, the systematic use of fire, and the control of stock numbers and movement). The day-to-day activities of the range manager appear to share much in common with the ranch manager, but their strategies for manipulating the production system are essentially different. The ranch manager controls his animals and staff, and his capital investment. The range manager confronts a different system. See table 8.1. But both professions draw upon the same technical knowledge about range resources, and animal production specialists do not usually recognize the radically different economic and managerial contexts of the two approaches.

The principles embodied in range management are so simple that to the technician they seem almost self-evident. A certain number of animals depend for their livelihood upon the vegetation resources contained in a certain piece of territory. The forage consists of a community of plant species, which in tropical environments are often considerably more complex than in temperate zone conditions. When too many animals are kept in one place too long, they naturally concentrate upon the more palatable (and hence valuable) species, leading over time to the replacement of these species by the less nutritious types within the association. Then perennial grasses give way to annual grasses and these in turn to weeds. Plant succession is thus a dynamic system, which under extreme misuse eventually degenerates into impenetrable bush thicket and bare hardpan. Under conditions of chronic overgrazing the carrying capacity of a given range diminishes steadily, sometimes even catastrophically. Carrying capacity is, therefore, a judgment about the condition of a range site at a particular point in time. For planning purposes the range technician tries to arrive at an averaged judgment of vegetation condition, knowing that this will fluctuate over the year according to the seasons, the intensity of grazing, the type of animals using the land, and the accumulated effects of past use. It is not an easy criterion to formulate.

The overall strategy of range management appears to be straightforward. It depends fundamentally upon a sophisticated grasp of plant ecology, but this is not difficult to convey to the capitalistic (or parastatal) ranch manager whose livelihood is drawn from a defined parcel of land which he owns or leases. If the ranch manager is skeptical the technician shows him that a temporary reduction in stocking will bring about an increase in the long run carrying capacity of his land. The ranch manager may be helped to develop water supplies which open fresh grazing for stock temporarily displaced under a scientifically based management plan. Range technicians like to believe that by careful adjustment of grazing periods it is rarely necessary to order an absolute reduction in stock numbers carried on a given ranch.

The above approach appears to have operated efficiently in Australia, and the western US. In the United States various Federal agencies (such as the Forest Service and the Bureau of Land Management) administer the semi-arid public land on which annual grazing quotas

*"A classification of East African Rangeland, with an Appendix on Terminology," *J. of Applied Ecology*, 1966, Vol. 3, p. 369.

TABLE 8.1
Typology of Livestock Development Systems

	Dairy Farming:	Beef Ranching:	Range Management:	Nomadic Pastoralism:*
Capital Intensity:	High, full range of stock facilities	Moderate, only essential facilities	Low skeletal facilities	Low to nil, temporary facilities
Degree of Control:	High, individual animals managed	Moderate, groups of animals managed	Low, only location of herds known	Low to nil, only sporadic contact
Movement Control:	Barns, sheds, fenced paddocks	Perimeter fencing horse & jeep assist	Boundary roads, herders on foot	Herders on foot
Degree of Movement:	Almost nil, in yard & pastures only	Moderate, within section w/seasonal shift of pastures	High, alternate day trek to water & seasonal shifts	High, alternate day trek to water & multiple shifts
Disease Control:	Antibiotics, daily observation	Treatment of most sick animals	Some treatment of some sick animals	Occasional treatment of some sick animals
Water Provision:	At yard & in each paddock, continuous	At central points continuous	At certain points, discontinuous	At certain points, discontinuous
Nutrient Provision:	Supplementary feed minerals & salt blocks	Winter hay & salt blocks	Some salt blocks & by herd movement	By herd movement
Pasture Maintenance:	Seeded pastures controlled rates	Reserve pastures controlled rates	Reserve blocks, fire control	Dry season areas annual burning
Livestock Records:	Full records on individual animals	Partial records on individual animals	Counts & weight/sex data at time of sale	Estimated numbers Counts at sale
Animal Identification:	All stock known & most registered	By location & branding	By branding & presence in herd	By presence in herd
Nature of Sales:	Daily sale of milk Early sale culls & steers	End-of-season sale of increase, steers fattening stock & culls	End-of-season sale of steers & culls	Sale of steers to meet cash needs, other sales to avert drought losses

*In this column nomadic pastoralism is described from the standpoint of the livestock service organization.

(measured in animal unit months or AUMs) are leased by private ranchers. The bureaucrats deal with ranchers through associations of stockowners, which formalize the allocation of these grazing rights. Ranchers can usually count upon continuation of their subsidized rights to use public grazing.* This combination of public resource management and private stock ownership appears to offer an attractive modern sector model into which traditional pastoralism might evolve.

Several range specialists with experience in the American West—notably Fallon, Heady, and Abercrombie—have helped convince the U.S. Goverment, and, to a lesser extent the UNDP, that this range management approach should be adopted in the drier parts of Africa. Advisory range management missions have been active throughout the continent: in Tunisia, Mali, Niger, Upper Volta, Northern Nigeria, Northern Ghana, Ethiopia, Somalia, Northeastern Kenya, Kenya Masailand, Tanzania Masailand, central Tanzania, and Botswana. This impetus has also been channeled into multinational efforts to save the Sahel, and to alleviate the Ethiopian and East African droughts of 1973-75. As with technical assistance generally, implementation has usually involved the establishment of projects in each country employing externally recruited experts.

In broad outline, these projects have been strikingly similar, usually sharing the following attributes:

1) A focus on dry lands, defined as "range areas".
2) Preliminary reconnaissance by a team of range experts.
3) Development of a program directed at pastoral populations.
4) Recruitment of a multi-disciplinary team of technicians to advise on the specialized aspects involved.
5) Provision of financing for capital investments.
6) Justification of investment in terms of anticipated off-take.
7) Attachment to the animal industry branch of the Agriculture Ministry, which usually provides counterpart officers.
8) Conservation of the existing ecology is often a subsidiary goal.
9) The dominant belief is the range management approach discussed above.

Before we turn to review the experience of the Masai Project which embodied all of these traits, we need to recognize certain additional premises which the intervention package does not state. Some technologies are relatively self-sufficient. Western range management is not one of them. It depends heavily on certain unstated features of the natural, administrative, and commercial environment:

1) *A substantial identity of interest between the producer and the range advisor.* Where all land is held in ranches (and to a lesser extent where land is leased), producers have an incentive to care about the long run productivity of their range resources.

2) *Mechanisms to cope with adverse seasons.* In extremely bad years the carrying capacity of African rangelands may fall off catastrophically. In a matter of weeks it may change from 1:20 to 1:100 (one animal per hundred acres), necessitating a fivefold reduction in stock numbers. The situation is at stark variance from a developed economy. The transport and slaughter facilities of a developed economy can handle stock in poor condition and on short notice. Even if prices fall there will still be some demand. Death losses can often be absorbed as a tax writeoff. Ranchers can buy back foundation stock from other areas once the drought is over, and owners often have access to irrigation and supplementary feed to tide some animals over during the adverse season.

3) *An orientation towards beef production.* Modern beef producers sell frequently and pay close attention to weight gains, a preoccupation that accords with the range specialist's interest in forage. If the stockowner is producing milk or breeding animals, he will manage his herds very differently and in ways not provided for in the technology.

4) *An adequate information base.* The technology assumes existence of an abundance of high quality information: precise stock numbers, vegetation trends, rainfall data, price trends, herd structure, and productivity data.

5) *Producer control of land use.* Where all land is either owned or clearly assigned, owners will initiate action when trespass occurs. On public lands technicians can count on other government agencies to support them, and they expect legal instruments to work.

In the African contexts where USAID and the UNDP intended to transfer range management technology, the settings fail to meet these conditions at almost every point. There is no identity of interest between the range technician and producers who are not tied to a particular parcel of territory. The national transport system cannot handle movement of large numbers of stock in bad years, nor can producers buy back calves to replinish their foundation herds when conditions improve. The producers keep mixed herds of cattle, sheep, goats, donkeys, and sometimes camels. Their strategies are rational, but diverge widely from those of a beef production system. Neither the number of animals nor the precise ownership of particular beasts can be established by the outsider. Longitudinal data on annual and seasonal range trends are lacking. Productivity coefficients are sheer guesses. And the range technicians must institute land use control

*John Baden and R. Stroup, "Property Rights, Environmental Quality, and the Management of National Forests," In, G. Hardin and J. Baden (1977:238).

without benefit of enforceable laws or the backup of a mobile police. Often owners themselves do not know the boundaries shown on management plans.

Such situations encourage a polarization of attitudes. To the producers, livestock technicians seem grossly uninformed about many details of herd management: the salt content of forage, the genetics of twinning, browsing behaviour of herds, the ability of particular breeds to withstand long drives, etc. So producers do not believe what range technicians tell them. To the range technician, the evident site deterioration seems to warrant extreme actions. But every proposal made to the pastoralists is ignored, evaded, or blocked. This confirms the technician's view that pastoralists are beyond the reach of rational argument.

Technical assistance projects in livestock development began to add social scientists to field teams in the late 1960s, in the hope of attacking this polarization. Anthropologists might discover factors underlying pastoral conservatism. Those factors could then be addressed directly. Indigenous corporate groups could be identified and made the basis for the action program. Finally, the social scientists might persuade pastoralists to take the economically beneficial actions which range scientists were recommending.

B. Beginnings of Range Management in Tanzania

In Tanzania range development in the modern sense dates from about the time of independence (1961), when the Veterinary Department's long-standing concern over disease control was broadened to include improved livestock husbandry. An area of special interest to the Tanzanian government was a section of northern Tanzania comprising most (80 percent) of Arusha Region occupied largely by the semi-nomadic Maasai people. The lands in question were about 14 million acres along the Rift Valley zone bordering Kenya. It was thought these lands supported about 45,000 Maasai, 1 million head of cattle, and perhaps 1.25 million sheep and goats.* Attempts in the closing phase of colonial rule to impose controlled grazing and livestock marketing had been operationally successful but politically disastrous. The African government that took power from the British was eager for a fresh start, something that might transform the Maasai from a tourist attraction into full participants in the modern economy, through the increased sale of livestock from their extensive range lands.

The shift in policy was signalled in 1962, when an American range specialist who had worked among the Kenya Maasai was officially invited "to visit Masailand and to advise this Government on development requirements for the Masai people." Fallon's eventual report was brief, just seventeen pages of text largely devoted to a simplified description of nomadic Masai life. His recommendations called for:

1) Creation of a Range Management Division in the Ministry of Agriculture.
2) Establishment of Ranching Commissions at the district level to regulate use and development of range resources in their areas.
3) Incorporation of stock owners into Ranching Associations, which would have most of the powers of a co-operative (i.e., the right to buy and sell stock and to regulate stocking quotas for members).
4) Passage of national legislation which would give the commissions and associations legally binding powers over areas designated for range use.

The appendices were longer than Fallon's report. They contained a draft Ranching Development Ordinance and by-laws which individual associations could adopt for conducting their business. The emphasis was on a legal framework to give stock owners joint rights in the utilization of range resources, and to allow for control of stock numbers under the overall guidance of a Ranching Commission. Most of Fallon's recommendations were promptly incorporated into the Range Development and Management Act of October, 1964. Due to its technical language this act was seldom read and little used by the range staff. They relied instead on a Ministry of Agriculture pamphlet issued in 1968 as a guide to the act.**

The Tanzanian government originally envisioned applying range development to several of the drier regions of the nation, including Dodoma, Singida, Shinyanga and the Masai District of Arusha Region. In the latter case the Ministry of Agriculture (thereafter termed KILIMO, as it was known in Tanzania) proceeded directly, making Masai District a "pilot project." The whole district—some 24,000 square miles lying in a crescent north, west, and south of Arusha, the regional headquarters—was designated as a range development area in late 1965. For the other regions KILIMO requested UNDP assistance. In the late 1960s, however, the Tanzanian government announced a new policy of district-wide villagization. In 1969-70 Dodoma was made the trial region for this new approach to Ujamaa settlement—just as the UNDP team was trying to demarcate pilot ran-

*L.E. Fallon, *Development of the Range Resources, Republic of Tanganyika*. Dar es Salaam: USAID, 1963, pp. 1-2.

**A Guide to the Use of the Range Development and Management Act, 1964*. Regulations additional to the Act were issued as a Supplement, No. 16 of 8 March 1968 (these incorporated suggestions made by the UNDP team).

ching associations. After a clash between UNDP experts and Tanzanian regional authorities, UNDP assistance to range management was abruptly terminated.

Field implementation of range development in Masailand began with the formation of a Range Management Commission in 1965 and the posting of a senior Tanzanian officer to Arusha to serve as its first secretary. It was essential to get at least one Ranching Association into rapid operation to be the "pilot project" for the Commission. A 300,000 acre zone around the District Headquarters at Monduli (which lay just outside the Arusha District, only twenty-three miles from Arusha town) was designated for this honor. Unfortunately, this meant the new association would draw its charter members from rival sections, the Il-Kisongo Maasai and their Wa-Arusha neighbours, before either was convinced of the need for the new organization or of the desirability of cooperating with each other.

In the public meetings that followed, many elders openly opposed the new scheme. The necessary approval (the Range Act stipulated 60 percent) was not obtained until the government offered very substantial concessions. It promised to convert seasonal grazing on the dry backside of Monduli Mountain into permanent pasture by the supply of pipeline water (at a cost of 1.4 million shs., or $200,000). Friction between the Wa-Arusha—who were largely goat keepers farming plots around their homes higher on the mountain—and the pastoral Maasai continued. As some of the Maasai pastoral homesteads contained Wa-Arusha wives, the cleavage was not territorially bounded. However the greatest overgrazing and soil erosion was taking place in the zone of mixed farming on the piedmont around Monduli town where the Wa-Arusha lived.* The inclusion of this area in the new Komolonik Ranching Association remained problematic throughout the life of the Masai Project.

By 1967, after three years, the range program in Masailand showed little progress. Senior Tanzanian officials recognized that substantially greater program resources would be necessary, including resident technical experts, field transport for range staff, training for Tanzanian technicians, heavy equipment for a water improvement program. Just at this juncture USAID was making a long range agricultural sector analysis to guide its future program in Tanzania, and range development was included as a priority option. At the Tanzanian government's request USAID agreed to provide a team to review the troubled Komolonik Ranching Association and to draft a project proposal for increased USAID involvement in Masailand range development. The resulting proposal emphasized sociological factors and included an Extension-Sociologist among the four positions USAID offered to fund as part of the program.**

C. The Masai Project, Phase I (1970-72)

Official USAID involvement with range development in Tanzania began with the launching of the Masai Project in early 1970. The Near East Foundation (hereafter NEF) became the US contractor responsible for recruiting five technical experts:

1) Animal production specialist, also to serve as team leader
2) Range ecologist
3) Livestock marketing specialist
4) Water development engineer
5) Extension/rural sociologist

Three of these positions were filled by individuals who had been active for some time within Arusha Region, where the project was located. The impression persisted that the new staff were part of an already operational "USAID Range Project".

The project's purpose was to achieve a sustained high level of livestock offtake in Masailand, consistent with proper resource management and Tanzanian development goals. The immediate aim of the project team would be to strengthen all of the Ministry's activities related to range development in the project area, which was defined as the whole of Masailand (at 24,000 square miles, Tanzania's largest district). This involved the following activities:

1) Formation of ranching associations
2) Improved range management
3) Improved animal health practices
4) Improved livestock husbandry
5) Improved water availability
6) Improved livestock marketing
7) Improved extension services

The first project team leader arrived in Arusha in June of 1970. By September the full team was present. By the end of the first year and six months of actual project work, the group appeared to have made a reasonable start

*The Arusha people speak a dialect of the Maasai language, but as agriculturalists they are looked down upon by the semi-nomadic Maasai pastoralists.

**R.J. Deans, et al., *Livestock and Range Improvement in Masailand: Tanzania.* Washington, D.C.: USDA for the Agency for International Development, 1969. This was a detailed and useful report, far above the average for this genre.

towards its objectives.* Four USAID-supplied vehicles had arrived, relieving an initial shortage of transport.

The USAID survey had recommended working with only four RAs, but enthusiasm was building for the formation of two additional associations in South Masailand. The first four registered associations were at Monduli (the original Komolonik Association), Ngorongoro, Loliondo, and Kijungu—two in the north, one in the center, and one in the south.**) The water engineer was working on the construction of cattle dips and range offices. The range specialist concentrated on the troubled Komolonik RA, supervising grazing trials to generate technical data on stocking rates, carrying out a vegetation survey, and encouraging members to start a jointly owned breeding herd. When field visits revealed many Masai were deserting the official stock markets because of high fees imposed by the District Council, the project established its own "Range"markets for association cattle. In the two associations at Monduli (Komolonik) and Ngorongoro, legal action was being considered under the Range Act to check the bean cultivation which was rapidly encroaching into the pastoral areas. These activities were going on simultaneously, spread over an immense area—nearly 350 miles from the Loliondo Association in the north to the Sunya Association in the extreme south. They give an impression of the typical scope of fieldwork undertaken by the project in its first two years.

In the larger context of regional development, the project remained an anomaly. Tanzania as a whole was engaged in a major transition towards socialist production. Party leaders were eager to show their compliance by sponsoring Ujamaa village settlements. Such villages involve major complications if farmers have already established themselves on smallholdings; they are easier to implement in pastoral areas where land has not been individually claimed. As fast as the project built new pipelines and water supplies they were colonized by agriculturalists who promptly declared themselves Ujamaa Villages in conformity with the new national policies.

Regional authorities in Arusha had not been privy to the AID negotiation process. To them, the project was an intrusion, standing in the way of teaching pastoralists how to farm within Ujamaa villages. The institution of a Range Commission had no precedent or place in the regional structure. There were other "national projects", of course, but these seldom had a major field component. The project anthropologist realized that its structure overlapped and competed with the regional administration, but the technicians did not view this with alarm.

By May of 1971 the situation had grown serious. A USAID team from Washington visited ministry headquarters in Dar es Salaam to try to clarify project aims in relation to the government's plans for Ujamaa settlement in the range areas. They sought official views about the uncontrolled spread of cultivation around water points and the granting of occupancy rights to the registered associations. The meeting only illuminated the depth of the disagreement between USAID and the Tanzanian government, and procurement of water development equipment under a loan agreement signed on February 8, 1971 was frozen.*** After a meeting between the minister, the regional commissioner, and the project staff in July, a compromise was reached, and an amended project agreement was signed in November to permit continued project funding.

By mid-1972 further changes were required. The volume of the project's administrative work had risen to a level where a full-time project coordinator was needed. In addition, a team of water development consultants had recommended that the project take over preparation of a twenty year master plan for the region's water development.**** The project agreement was amended in August, 1972 to create the coordinator's position and to provide water testing equipment for the water master plan.

Meanwhile the Tanzanian government reorganized its field administration. Under the decentralization policy planning and finance functions formerly exercised from Dar es Salaam were put under the regions. Each region received a regional development director, equivalent in rank to the civil service head of a ministry. At both regional and district levels staff officials responsible for planning, finance, and personnel were added. The agricultural and livestock functions of the ministry were split, the project coming under the Livestock Division. Team members were ordered to report daily to the Monduli District Livestock Development Office. The team leader retained a desk in Arusha, but for day-to-day matters the project reported through the hierarchy of district officials.

The frequent changes and reassessments in the project took their toll upon staff and morale alike. As fast as Tan-

*The details following are derived from the monthly team reports for 1970 and early 1971.

**Each RA had its own Maasai name—e.g., "Komolonik" for the Monduli RA—but to minimize confusion the place names will be used here instead.

***The promise of this equipment had been a key point in gaining project acceptance from the Maasai members of parliament, one of whom came from an area needing dams (he was to become Minister of Defense and later Prime Minister during the life of the project). The delay at this juncture coincided with the devaluation of the dollar. By the time the order was reactivated prices had risen dramatically and equipment manufacturers had taken other contracts.

****E.D. Gordon & J.F. O'Rourke, *Proposed Water-Resources and Land-Capability Investigation, Arusha Region, Tanzania.* Washington: U.S. Geological Survey, 1972.

zanian staff were recruited as range officers, they were called up to do their national service or assigned to counterpart training. Of the initial five foreign experts, three finished their tours or otherwise left. In its first four years the team had had three leaders, reported to four successive regional heads, and worked under three District Livestock Development Officers in Monduli. By the end of 1972 half the project vehicles were not running because of a lack of American spare parts.

The project was continuously under reconsideration, either by Tanzanian leaders or USAID. Among Tanzanians there were fears that the US experts might oppose the Ujamaa settlement program. When equipment was late in arriving, this was interpreted as a deliberate US action to impede Tanzanian development. Some USAID officials in Washington opposed the project's investment in a socialist country where land was not privately owned.

D. The Masai Project, Phase II (1973-76)

In early 1973 the project underwent its first external evaluation. In preparation for it the project team reviewed progress on each of the eight established ranching associations. (I had just joined the team as the rural sociology extension specialist.)

First, it was found that the ranching associations had become popular among the Maasai* themselves. The cohort of "morani" (warriors) in formation at the time when the project was launched chose to be known as the "ranchi" group. Generally, the Maasai elected established tribal spokesmen as officers of the RAs—something which did not happen in the party elections. A common pattern was for the chairman and vice-chairman to be drawn from the elders' generation, the secretary and treasurer representing the younger, educated Maasai. Other these four officials (who with the range officer constituted the association's executive committee) were also balanced geographically. But the associations had grown very large: 300,000 acres at first and now about 500,000 acres for the more recently registered RAs. The size was dictated by the desire to encompass the seasonal movements of the major sections of the core membership. The disadvantage was this was far too large an area for controlling members' grazing rights and determining annual stock quotas.

Second, the ranching associations were not receiving equal attention within the project's field program. Between 1967-70 the Monduli Association received disproportionate attention. Now the Kijungu Association in the south had become the "pet" area. The reasons were obvious. Until discovered by USAID technicians, Kijungu had constituted one of the most isolated parts of Masailand (being the setting for much of Hemingway's *Green Hills of Africa*), more often visited by poachers than government officials. The association chairman had been a Jumbe (or "chief") under the British colonial regime, and had amassed hierarchical authority to a degree rare among the egalitarian Maasai. Project suggestions were welcomed by the Kijungu Association and their leader's commitments were honored. But it was clear the original UNDP concept of a "narrow front" approach—in USAID's terms getting a 'demonstration effect' by concentrating on a few model RAs—was not working.

A pilot scheme assumes that success can be copied in other areas, and that those witnessing the initial benefits (i.e., stock owners from the surrounding areas) will adopt the new practices on their own initiative. However, key livestock services such as dips needed for tick control and veterinary assistance were beyond the capability of cattle owners. East Coast Fever spread by ticks had been responsible for high levels of calf mortality. When in the Kijungu RA the newly constructed dips effectively controlled this disease, all of the owners from the dry side of the mountain (where ticks were less of a problem and where owners had earlier refused to join the association) promptly moved their herds onto association lands.** Throughout Masailand stock owners were quick to notice that registered RAs received more government assistance. The five higher potential RAs (Loliondo, Ngorongoro, Monduli, Kibaya, and Kijungu) all experienced large net increases in resident Maasai families and herds after registration. The only reason the other three RAs (at Simanjiro, Shambarai, and Sunya) did not receive equal pressure was that their services were not yet effective.

USAID officials concluded that the answer to this dilemma was twofold: grant occupancy rights to each association, with full enforcement against trespass by the local administration, and institute scientifically based management plans in each association to control members' stocking rates and grazing movements. These views were shared by the project's range management technician but the practical difficulties were formidable. Association boundaries were not known on the ground, and it took six months simply to traverse the perimeter of each RA with the relevant Tanzanian range technician. Technical data on vegetation trends under varying stocking regimes were not available, and the project

*Although known as the "Masai" in all official documents, the people refer to themselves as the "Maasai," and this spelling has been widely adopted as correct for their tribal designation.

**The reason these stock owners had refused to join the association earlier was their justified fear of mixing their herds with those already infected by East Coast fever.

reestablished grazing trials which had been started several years earlier but lapsed when the first range management technician left. Finally, hardly anything was known about the actual grazing patterns being followed by individual Maasai stock owners.

Tanzanian officials held quite different views. Within the Ujamaa village program they, too, had begun with pilot villages only to experience the same deterioration occurring within the RAs. Government policy now favored a "frontal approach," whereby all families were being moved en masse into new villages on a district-wide basis. Officials were convinced that village units should be created within the associations and that the project should spread its efforts more evenly throughout the district. To do this they wanted construction equipment for building roads and giving each village a permanent water supply. They also criticized the project's isolation from the usual structures for district administration, and its duplication of facilities with those of the Veterinary Division. They anticipated dividing the huge Masai District in two, and they wanted the project to supply staff and transport to service both districts.

Arrival of the outside evaluation team early in 1973 marked a critical turning point. The USAID team included Abercrombie and Hess, influential advocates of range development prior to the project's inception. The Tanzanian Regional Development Director, Lyatu, had been a high KILIMO official. He made clear the Tanzanian commitment to see the project succeed. The review team's initial report was not accepted, and the members remained in Arusha for several days of bargaining. A revised project format was finally agreed upon. The major changes, which set the scope of the project's activities between 1973-76, were as follows:

1) The Tanzanian range and veterinary sections were merged into a unified Livestock Development Department with specialized sub-sections under each technician's advisement but operating as a functional team in charge of all livestock department activities within Masailand.

2) Three additional positions were added to the project team—a veterinarian, hydrogeologist-driller, and a heavy equipment specialist—in order to strengthen the team's implementation capability.

3) It was made a formal condition that each technician have a schedule of duties, that the full team meet monthly, and that it prepare an annual work plan.

4) Within each RA, smaller units equivalent to individual ranches (or Ujamaa settlements) would be created to control grazing and manage water resources. The associations would be retained as the framework for wider activities such as extension, marketing, and veterinary services. Wherever possible RAs and wards (sub-district units below the level of divisions) would be arranged to correspond, so the RA Committee could be a livestock sub-committee of the Ward Development Committee in the district's structure of field administration. Similarly the Range Commission would be constituted a technical sub-committee of the District Development Committee, meeting in special session to consider range matters.

5) The project would place greater emphasis on the rapid completion of management plans to guide the RAs and their constituent management units in controlling grazing and planning future physical developments.

6) The team's progress would be measured against the eight established RAs, but additional associations up to the total of twenty-one required for complete district coverage would be formed as quickly as the Maasai were ready.

7) The US technicians were instructed to avoid favoritism and to work equally with all registered associations. At least one RA would be established in each division (the administrative unit below the district), with others to be activated as progress was made in existing RAs. By internal directive, US technicians were asked to insure that on long trips to South Masailand (where the favored Kijungu RA was located) at least one way was travelled "through the middle" to touch the RAs at Simanjiro, Shambarai, and Ngasumet (in formation during 1973-74).

8) A Tanzanian Co-Project Manager was appointed to serve as the team leader's counterpart. This officer would be responsible for the control of the project's Tanzanian finances (which would become quite substantial once the field construction program for water supplies was underway).

9) The provision of counterpart training was greatly expanded from fifteen to thirty positions.

10) Finally, with the recruitment of a heavy equipment specialist, the team would be able to service its own vehicles and construction units. Field workshops would be opened in both North and South Masailand under Tanzanian Government funding. USAID would insure adequate vehicles and spare parts for the technician's field activities. A second USAID loan would be made to provide additional water development and veterinary equipment.

At the 1973 meetings several additional points were made clear:

1) *The Maasai people would probably be resettled into permanent villages in the near future.* This would be a major exercise, but there was no notion what such villages would look like nor was there background information upon which resettlement could be based. I began work on a division of functions between the "management unit" (village) and ranching association levels, but Tanzanian officials were more interested in a physical plan for a model "livestock village" (which we duly produced in two versions—one linear and one circular). As for the proposed physical movement of the Maasai into consolidated villages, we did not know the numbers of families, their sizes, the sizes of their herds, the wet or dry season graz-

ing areas, or even the degree of sedentization that had already occurred.

We urgently needed a minimum information base covering these topics. Accordingly I designed a "sociological census." In reality it included more technical than social aspects: degree of past movement, customary grazing patterns, stock husbandry practices, family size, herd size, etc. Localized field surveys using Maasai students on holiday were started immediately to obtain this information on the two southernmost RAs (Kijungu and Sunya). This would provide some sociological data to balance the vegetation surveys by the range mangement specialist. Our anticipation of likely policy directives proved accurate: in November 1973 the party announced that the whole of Tanzania would be resettled into Ujamaa villages in three years (1974-76). Small groups of senior officials resident in the district headquarters at Monduli now began active preparations to resettle people throughout the 24,000 square miles covered by Masai District.

2) *A data base on livestock production would have to be established.* Project targets had been defined by USAID in terms of conventional technical parameters. In the evaluation USAID officials stressed the need for production data. But there were no reliable data. Stock had usually been registered under the senior male responsible for several households; the same names were often duplicated in different families and sections; people had been moving in and out of each section at will; and there was no system of branding which we as outsiders could interpret. We tried crude counts at the major tick dips (each herder brought his stock for dipping once a week in rotation, and because of the fear of the virulent East Coast Fever—ECF—most did so punctually), but the animals moved through the busier dips at such speed it proved impossible to record sex and age estimates. Later we tried ear tags and dyes, but in thick brush the tags soon tore off and the weekly acaricide bath obliterated dyed numbers. There proved to be no cheap and reliable way for establishing a permanent register of RA members or their livestock.*

3) *The Project must establish technical innovations which the Maasai themselves admired and could emulate.* From 1970-73, the livestock component had been one of the weaker elements in the project's effort. The livestock specialist doubled as team leader and was preoccupied with urgent political and logistic issues. We could see that unless the project established greater legitimacy among the Maasai themselves, they were unlikely to accept our husbandry recommendations. The one activity which seemed to respond to this need was the distrubition of improved bulls to RAs. A first attempt in 1971 had been disastrous: of six bulls sent to Kijungu all died of ECF; of thirty sent to Komolonik RA, twenty nine also died (most within days of their arrival).** Now we had more field staff, the dips were controlling ECF, and there was an obvious need to find an innovation suited to the new Ujamaa villages. The ministry was still willing to supply us with bulls for herd upgrading, so this became the main focus of the animal production specialist's activities when not attempting to gather USAID statistics.

4) *Techniques utilized in range planning constituted a major bottleneck.* Contemporary range management planning is data-intensive. It requires information on the species composition of vegetation, its area coverage, and trends in the land systems being mapped. In the tropics the species composition is complex, past use and trends are not known, and the boundaries needed for accurate area calculations not available. Ideally, the forage base should be mapped first, since it ought to guide the development of water points, allocation of stocking rates, determination of grazing patterns, and demarcation of population units such as ranches and villages. In practice, specialists in later activities are accustomed to working with less refined data and can provide results *before* the range management technician can furnish his input especially when large acreages are involved. Yet USAID was insisting the project's one range technician should supervise the preparation of management plans for all eight RAs. To test the potential for applying rough-and-ready field techniques, one of the originators of the project was released by USAID to spend two weeks in the Kijungu RA to provide a draft vegetation map for its management plan. But nearly a year's further work had to be done to complete the Kijungu management plan. By then most of the basic decisions regarding water supplies and the location of villages had been made. The only way to increase the rate of output was to shift the responsibility to Tanzanian staff whom the range specialist had trained on the job. Considering that it took two non-project professionals two years to map the vegetation of the Ngorongoro Conservation Area (another of our RAs), the project average of about a year per range management plan per association was comparatively quick.

5) *Accelerated water development was a political necessity.* The principal reason for Maasai herd movements had always been the drying out of seasonal water supplies on the short-grass plains. If the Maasai were now to reside in permanent villages with stabilized

*The large size of the typical association—containing perhaps 300 families dispersed over 500,000 acres and owning perhaps 50,000 cattle—was a major factor. For this reason, team technicians were not adverse to the Tanzanian suggestion that the RAs must be subdivided into what USAID called "management units" and the Tanzanians called Ujamaa villages.

**C. Hatfield, E. Moluche, and R. Ole Kuney, "The Introduction of Improved Stock into Masailand: An Initial Assessment," Paper given before the Tanzanian Society of Animal Production Conference in Arusha, May 1975, pp. 4-5.

grazing, they would have to have reliable water supplies for themselves and their cattle. Regional authorities looked to the project's long promised heavy equipment as the mainstay for villagization in the pastoral areas. As of mid-1973 no equipment had materialized. Project technicians warned the Tanzanian authorities of the danger inherent in building water supplies before the pastoral system was under control. From the Tanzanian standpoint, seven years of commitment to ranching associations without the benefit of water-related construction equipment had yielded meager returns. USAID officials countered with explanations about the complexity of US tender procedures. Then the water engineer learned of three D-8 tractors sidelined for several months in Dar es Salaam over a dispute between USAID and the Ministry of Agriculture. Through the Prime Minister's Office we requested and obtained their loan to the Masai Project. Our own heavy equipment did not arrive until 1974-75 three years after promised and the units we borrowed earned us a reprieve within the region. The emphasis we put on dams meant that the facilities constructed would be rainfall dependent (most were small field structures), somewhat protecting the rangelands in very dry years.

6) *The Project would have to be logistically self contained.* Project agreements signed by the Tanzanian Government in Dar es Salaam promised support the regional administration in Arusha could not deliver. Masailand was almost devoid of infrastructure. To reach South Masailand we usually drove several hundred miles through two other regions, since there were no direct routes of access. We determined that in the last resort we would create our own infrastructure: supplying funds to construct six technicians' houses, delivering our own fuel from the coast, building livestock department offices, laboratories, and markets in each association, even equipping field workshops to maintain our vehicles and heavy equipment. To offset the danger that the project would be seen as a parallel USAID unit, all of these activities were incorporated in the Livestock and Water Development Ministries in the Masai Districts. The Monduli DLDO—a project-trained counterpart recently returned from the US—was in charge of the project's field activities, and the project team reported to him daily.

7) *Increased livestock off-take was an overriding priority.* By 1973 the Maasai were taking advantage of improved disease control to increase stock numbers. It was imperative that the rate of stock sales from the range areas be increased. But there were no figures on the existing rates! Existing stock sales were evading formal channels to such an extent that a count at the official markets had no meaning (some animals being trekked as far as Ngong in Kenya for sale to the lucrative Kenya market). Several RAs did contain large stone marketplaces left over from the colonial period, when stock marketing had been compulsory. The Masai District Council which had inherited this function in the 1960s continued an unpopular tax on sellers and by the 1970s most trading occured outside official channels ("magendo" sales in the bush). To learn the volumes and nature of actual sales it was obvious that the project needed to entice trading back into the local RA markets. We began to reactivate this function while reducing marketing fees to a nominal sum.

It then emerged that we were dealing with a dual pricing structure. The butchers from nearby urban areas like Arusha or Moshi Town brought trucks directly to the auction ring, and could begin slaughtering on the same day. Their overhead costs were far lower than the national buyers who moved stock to distant slaughterhouses in Dodoma and Dar es Salaam, incurring substantial death losses en route. The attractive prices paid by local butchers for the top animals at each market led Maasai owners to refuse to sell at the much lower prices which the national marketing organization offered. The "conservative" refusal by the Maasai to sell cattle derived from unattractive prices more than from sociological reasons.*

Project marketing activities were accelerated in 1973-75, when for three successive years rainfall was far below average. The project was given permission to take over livestock marketing throughout South Masailand, using the range officers in each RA as primary market supervisors. In the North, where the drought was worse, in 1975 the regional administration intervened to declare emergency markets at which the national marketing organization was compelled to buy cattle (actually losing money on each purchase).

8) *The technology we were sponsoring was inadequate.* The principal areas of divergence between field conditions and technological premises were as follows:

(a) Even the most acculturated Maasai did not share the range technicians' conclusion that *they* were responsible for worsening their own plight by increasing herd sizes. The bimodal rainfall regime encouraged stockowners to hope for relief in the next coming season (usually a month or two away) while their own awareness that the good and bad years come in jags of several seasons' duration made them less willing to accept responsibility in the bad cycles. Many Maasai also blamed the continuing alienation of the best rangelands to other uses—bean farms, national parks, military training areas, wheat ranches—as a general cause of their predicament. What is significant sociologically is that these alternative explanations predisposed Maasai stockowners to reject their own responsibility for corrective action. We faced a tragedy of

*As evidenced when stockowners drove cattle long distances to a market, but returned with the animals unsold because of prices offered. In one instance Maasai owners who had less than a third of their animals purchased threatened the Range Officer (himself a Maasai) with death if he called another such market, since a long trek was very hard on weakened animals.

the commons situation; the largest profits in the short-run could be reaped by the most exploitative actions. (In real drought the man with the largest herds is the most likely to survive). The project was working against the grain of local economic trends and sociological views. Several visitors assured us it had taken forty years to change similar perceptions in the American West. We were attempting to do it in ten

(b) The incomplete nature of "improved" livestock production systems became apparent in the worst years, when stockowners did generally try to rely on the commercial economy as we had been urging. In really bad years rainfall might miss entire sections of twenty miles square. Spatial variations in rainfall became very patchy in dry years, vindicating the demarcation of RAs into very large units but also destroying any planned rotation of grazing at the local level. Our suggested grazing blocks did not provide for the concentration of all of an RA's herds on the one small area that received some rain in that season. At such times supplementary feed was not available within the commercial system.

When livestock owners judged their herds would be unlikely to survive the season, they did come forward with large numbers for sale. At this point the commercial system failed: it could neither absorb large numbers of animals for transport to distant slaughter houses, nor could it pay a fair price for the few better quality animals purchased. In times of drought the small shops in Masailand had no food to be purchased at any price—making a mockery of our urging people to convert stock into money for use in times of hardship. After the drought stockowners tried to rebuild their foundation herds, but new breeding stock could not be purchased except at very high prices. The commercial economy of northern Tanzania was not yet at a stage where it could accommodate the needs of livestock producers. In this situation of partial monetization those who took our advice were not necessarily better off for having done so.*

(c) Range management in its American form assumes tight control over land use and relies on legal instruments to counter infractions. USAID expected the same tactic to work in Tanzania. To the contrary, where lands are unfenced and private ownership rare, the protection of land use rights becomes problematic. One of our RAs overlapped the Ngorongoro Conservation Authority. We watched over the years as the Authority expended a tremendous effort to control trespassing and eliminate poaching, an effort backed by the full resources of the Tanzanian government. Despite staffing levels and finances maybe five times the average in other project areas, the Conservation Authority was not totally successful. Our difficulties were more serious; the cattle did not carry registered brands and some kinds of trespass were regarded by the Maasai as legitimate. Nor did we have visible boundaries on the ground that could be defended. In theory the Range Act gave us strong powers; in practice, the limited control feasible in remote areas determined what could be attempted. There is a glaring need to rethink range management technology to identify strategies that are appropriate where land use control cannot be legally protected.

By mid-1975 the project team had hit its stride and was realizing the benefit of seven years' work. It operated fifteen sub-programs supported by nine foreign technicians and about two hundred Tanzanian employees of the Livestock Development Department in Masailand. We had opened new routes through the center, so that outposts of key importance to the pastoral economy were being regularly assisted. Veterinary supplies were on order to equip livestock development centers covering the whole territory. The anthropologists and their counterparts had suggested the boundaries for subdividing the entire district into RAs, grouped into coherent marketing and disease control zones. They had generated recent data on populations and grazing patterns for about half the area, in time for use in the resettlement exercise.

The team had anticipated the sub-division of its operational area into Monduli and Kiteto Districts, each now provided with a US-trained team of counterpart officers. The team's Co-Project Manager, I. Karyongi, was a Maasai, as was also the anthropologist's counterpart, R. Ole Kuney. Over half the foreign team spoke Kiswahili, and individual technicians regularly attended Tanzanian government meetings related to their specialties. The range specialist had devised a simplified system for range planning, and was later requested by the Kiteto District to apply this in all its Ujamaa villages. The project successfully operated cattle markets throughout South Masailand during a time of increasing drought, and was now assisting in the north as well. Five heavy equipment teams were in the field constructing water supplies, supported by the project's own transport and workshops. And we were receiving the full backing of both the Tanzanian Government and USAID. We had turned the corner.

E. The Masai Project, Phase III (1977-79)

By 1976 the Masai project had solved most of the issues which had seemed so critical in the 1973 evaluation. We had almost completed formulating the components need-

*The key role of dry years as *the* test of a production system is stressed in other sources. See D. Campbell, "Coping with Drought in Kenya Maasailand: Pastoralists and Farmers of the Loitokitok Area, Kajiado District," *IDS Working Paper No. 337*, 1978, Nairobi: I.D.S.; and J. Halderman, "An Analysis of Continued Semi-nomadism on the Kaputiei Maasai Group Ranches," *IDS Discussion Paper No. 152*, 1972, Nairobi: Institute for Development Studies, Univ. of Nairobi.

ed for success, and were finding how to make these components cost-effective on the ground. We had not pressed home action on the single most important issue of all: how to integrate Ujamaa villages into the ranching association structure.

We had proposed in 1973 a division of functions between the RAs and their constituent management units which the district ignored. The government had agreed that a different type of "livestock village" could be permitted in pastoral areas but our technicians had not been able to invent a suitable village livestock production system. In any case the whole Ujamaa policy was treated by Tanzanians as their own issue outside the purview of non-Tanzanian staff. What I failed to see was that the drought of 1974-76 bought us a respite when we might have resolved the impasse, had the team's full resources been concentrated on this one, overriding issue. Once the rains returned from 1976 onwards, the two Masai Districts immediately embarked on widespread settlement and the project team never fully caught up with changing events.

At the time we were somewhat more concerned with the danger of dispersing our efforts in new programs that either the Tanzanian Government or USAID wanted. Here the project's apparent success worked against the team's continuing effectiveness. It seemed that any initiative remotely connected to livestock development was being channelled in our direction. The project was made responsible for the preliminary planning of:

1) Four World Bank (IDA) loan-financed beef ranches, to be operated by individual RAs on behalf of their members
2) A land capability survey using remote sensing (ERTS) imagery and covering the whole Arusha region
3) A US grant program to build "drought roads" that opened new routes to the extremities of both North and South Masailand
4) A livestock training center.

These were desirable and worthy projects, but the demands they placed on team technicians destroyed the continuity of effort we had begun to achieve. The root problem was that the most information about a project's environment is required during project formulation. US planning procedures tend to assume that adequate information already exists. In the Masai situation, formulation of a new project entailed a huge investment in information acquisition. It had to be undertaken by the most experienced staff on the team. We did eventually get all four of the linked projects into operation, but the division of efforts was to have serious consequences.

Internal stresses surfaced. The project team grew too large. In 1976 a separate agricultural information position was added, as well as a driller and a second range management specialist for the new Kiteto District. There were now ten technicians, not counting several linked positions on other USAID projects in the region. We were running a hydrogeological laboratory, stocking spare parts for all USAID Jeeps in Tanzania, assisting a livestock sub-sector survey in five regions, dealing with three Tanzanian ministries, and attempting too much.

There was no room in the project buildings large enough to hold the full team, including more than twenty Tanzanian counterparts. For such meetings I hired a classroom in a local school. New members of the team felt left out. They were openly critical of the inclusion of a veterinary component in the project when under conditions of extreme drought Masailand was obviously overstocked. The older team members evidenced an attitude akin to battle fatigue. Several decided it was time to seek other assignments. The Dar es Salaam USAID mission continued to support the project despite Washington resistance, earning such antagonism that the project manager was directed to route all outgoing cable traffic through the ambassador for clearance. Shortly thereafter the Agency took the unusual step of transferring every single senior officer but one from the Dar es Salaam USAID Mission.

External pressures intensified. We had fought a running battle with ministry headquarters to delay the World Bank loan ranches. We judged these were drastically underbudgeted, unrealistic in what they presumed Tanzanian field staff could do, not capable of generating sufficient revenue to repay the loan, too complex for the associations to manage, and inappropriate during a time of sustained drought. We lost, and eventually got one ranch for the Kiiungu RA into operation. It is one of the few project activities that survives today; but our opposition cost us the further support of our own ministry.

Meanwhile the ministry had received UNDP assistance to establish a Livestock Development Authority which would operate a subsidiary company for livestock marketing. To this point the primary cattle markets within RAs had been organized largely by each association's range officer on a rotating schedule that incurred few overhead costs. The project was informed this function would now be undertaken by the livestock marketing company. We finally agreed that the project's most experienced member (and first team leader) would transfer to the other project to continue as zonal advisor in our region. But the hope that a commercial organization with its Landrovers, officials, and police escorts could operate on a cost-recovering basis in remote and peripheral areas was illusory. For the RAs, the new marketing organization proved economically disastrous, just at the stage where we had begun to see regularized off-takes.

Following a second external evaluation of the Masai Project in early 1976 many changes occurred. By mid-1977 most of the earlier team except the heavy equipment specialist and the anthropologist had left. Most of

their US replacements did not speak Kiswahili, the language in which nearly all Tanzanian government meetings are conducted. In the field they found district officials heavily engaged in resettlement activities. These became the project's principal focus in its final three years. Several Tanzanian counterparts left to become planners in the Prime Minister's Office, since they felt (with some justice) that their own ministry preferred veterinarians when filling senior posts in the Livestock Development Department. Monduli District in the north was again subdivided to create a third Masai district. The new USAID team in Dar es Salaam tried to assert greater control over the project's Tanzanian-funded expenditures. As a consequence, the level of Tanzanian operational funding was curtailed. Finally, in 1978 it appears that the Tanzanian authorities decided to disband the ranching associations which had been the focus of effort for over a decade. USAID then decided that the termination of project funds at the end of 1979 would signal the conclusion of US assistance to Masailand.

It is not possible to be more specific about the project's final period. From discussions with Tanzanian colleagues who continued in their posts it seems that little of lasting effect may survive.* Without money or experts, there is no further role for a supra-district project structure bridging between the livestock and water development ministries in regard to the Masai districts. The training center at Monduli is the one remaining major institution other than the association facilities. It is said that it might be converted into a secondary school. The last Tanzanian head of project has become the member of Parliament for his home area; and the Maasai Prime Minister has left office because of ill health. A few dams have not washed out, but the field equipment without the protection of project status is being gradually dispersed. The nucleus of professional staff, equipment, and expertise which could have continued the search for a viable economic base for the pastoral economy has now been dissipated. Even the routes the project team pioneered for direct travel into north and south Masailand from the regional headquarters in Arusha will not long survive if they are not maintained.

Conclusion

The Masai Project experience offers several lessons for rural development programs generally.

First, it illustrates the chasm which commonly lies between the "ought" and the "can" — between the desirable and the feasible. Economists writing about development often assume analysis is complete when substantive requisites are identified. One frequently reads statements along the lines of: "there should be one extension officer for every two hundred families..."; "adequate and timely price information is essential..."; "a ten percent annual offtake must be maintained..." Statements in an imperative and prescriptive vein intimate that the means to action exist. The message of this book is that in poorer LDCs the means are often the primary problem. The Masai Project suggests the importance of modifying prescriptions to fit capabilities in the short run and not vice versa.

Second, any project or program which must work against the grain of inherent trends must be seen as being endangered. On top of all the other problems of pastoralism, in contemporary Africa we encounter a tidal invasion of pastoral lands by marginal crop cultivators being pushed outwards by population pressure. The cultivation is fiercely risky (with total crop failures perhaps one year in three), but the returns per hectare to individuals exceed those from pure pastoralism. Short-run, high risk exploitative farming continues to displace pastoralists from the best rangelands, which formerly supported livestock during dry seasons and are consequently the key to the productivity of the pastoral system.

Third, the pastoral dilemma is fundamentally a *systems problem*. No single measure is likely to change things greatly because of the negative influence of other weaknesses in the total rural system. Modernization of pastoralism remains a theoretically attractive possibility, but it requires simultaneous improvement in seven areas: control over land use (most easily achieved by controlling water supplies), developing alternate food supplies, finding ways to identify individual animals, means to keep foundation herds alive during extreme drought, adequate disease control to lower the risks of production, the linkage of defined human and stock populations to particular ranches for which the people feel responsible, and efficient transport and marketing of animals without high death losses so that attractive prices can be offered. Unless we can learn how to improve the inter-agency matrix of services in a coordinated fashion (integrated rural development), individual project investments will remain relatively ineffective. It does seem that many other types of rural development programs share this dilemma.

Fourth, high risk projects should include fall-back objectives which convey substantial benefits even if the primary objectives are not realized. In the Masai Project we made a special effort to attract Maasai students into livestock training. We also established a firm base of scientific materials and proven experience in each of the sub-program areas (such as road construction, water development, grazing management, etc.). It was our hope (mistaken, as it now appears) that we would leave behind a

*The problems of livestock development projects in many African countries indicate that the difficulties we faced in the Masai Project were not unique. For a general review of the situation to date see a USAID document, *The Workshop on Pastoralism and African Livestock Development*, A.I.D. Program Evaluation Report No. 4. Washington, D.C.: USAID, 1980.

sufficient logistic and human capital base so that, even without technical experts, the region could eventually achieve its own solutions for the pastoral population.

Finally, the retention of residual and fall-back benefits becomes much less likely when major programs are implemented under a project framework. Projects are time-phased. When they end, support can cease as abruptly as it began. In the Masai Project there was no operational base where resources could be lodged that might survive the project itself. Once the project funding ended the better staff were transferred to other regions (often at their own initiative); the many reports, maps, etc. we had accumulated were dispersed; and the entire fabric of what had been a large program fell into pieces. Yet for a while we did have sufficient resources to begin solving the major field problems one by one. In my view this underscores the need to institutionalize program resources separately from individual projects (with their orientation towards immediate outputs), so that over the longer run a government can learn from its own past experience in each of the major domains for rural development.

CHAPTER NINE

The Practical Implications of Experience

Problematic Features of LDC Administration

Requisites of Managerial Effectiveness

Problematic Features of Western Management

Guidelines for Program Development

Rural development programs have not had the benefit of studies which closely observe what field staffs actually do (as contrasted to what they report). This is a significant gap in our knowledge.

When I became a project manager within the Tanzanian administration I soon learned that much I had been teaching to Tanzanian administrators from the textbooks was not always relevant—nor correct. Better knowledge was needed in four related areas:

1) Problematic features of LDC administration
2) Requisites of managerial effectiveness
3) Problematic features of Western management
4) Guidelines for program development.

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A. Problematic Features of LDC Administration

Experience and study suggest that indigenous LDC administrative systems have at least six features which create endemic problems, when the aim is effective action:

1) *The control chain from the field to ultimate sources of finance and support tends to be long.* There may be five to eight intermediary decision points where review is conducted and delays can occur. If we assign a probable rejection rate of only 5 percent at each stage, by the time decisions have been passed up the chain for approval and back down again for implementation, the chances of rejection or of modification into unacceptable form are about 50/50. The bigger danger is usually not outright rejection (a messy affair in most systems), but perverse alteration: As Siffin warns (1979:5):

> The course of ordinary events is highly vulnerable to delay and blockage when events must be seriatim blessed by a diverse group of actors who do not share a strong, stable consensus on means and ends.

2) *In LDCs commitments on paper are more conditional than external actors may realize.* Where senior officials are frequently changed, today's commitments may be modified tomorrow. Mallon's concept of "mediative policymaking" often applies (1975:165):

> Given the frequent lack of specific policy consensus within coalitions...major policies tend to be subjected to continuous reappraisal and can seldom be assumed 'settled' ... conditional policy flexibility, in addition to generating uncertainty, imposes a very severe time constraint on the decision-maker: even his longer term policies will be judged largely by their immediate effects.

In much of Africa and Asia officials feel that it is impolite to reject outright an unacceptable proposal. So senior officers often sign agreements which they have no real intention of implementing (an understandable tactic in poor countries which want the resources being offered but not the accompanying programs). An experienced manager on the scene can usually tell which commitments embody genuine intent, but from a distance (either in the village or in a foreign capital) this may not be apparent.

3) *The timing of events is frequently not subject to planned control.* In contemporary Western management time is treated as a resource, subject to allocation and accountancy like any other resource. Most forms of implementation planning (such as PERT or CPM) involve time budgeting and require estimates of the duration for all interconnected activities. The Chambers and Belshaw (1974) system of Programming and Implementation Management (PIM), for example, is based on time budgeting as is Kulp's (1977) approach to agricultural planning. Both include sub-routines for planning the work of extension agents by determining the discretionary time available for re-allocation in each month. In my project we tried to apply a simplified version of these techniques, and immediately discovered that field staff working below the district level had almost no control over the timing of their own duties. The continuous interruptions included vehicle breakdowns, natural disasters, pre-emptive scheduling by higher officials, and unanticipated visitors. The key activities were easy to identify, but many depended for their beginning or completion on external events whose timing was totally unpredictable. After one disastrous weekend spent trying to time-phase the events needed just to *initiate* the Masai drought project, we never repeated the exercise.

Causes of the generally high levels of uncertainty which prevail in LDC rural development administration include: a basic failure at all levels to adhere to schedules (probably more pronounced in nations emphasizing an echelon type of authority), the underlying irregularity of most supporting services, the involvement of international assistance, with each sub-group of experts following its own bureaucratic calendar, and the fluctuating seasonal regime. These causes ramify, affecting the likely duration and actual timing of events.

4) *Field units are contained within strongly hierarchical administrative structures.* It is not unusual to find that a large share of the organization's total staff consists of incumbents who view their immediate roles as the control of subordinate staff. Neher depicts the consequences of this situation in Thai bureaucracy (1974:9):

> The continuing attempt by bureaucrats to maximize their standing in the hierarchy results in a wide array of programs. Subordinates mobilize workers and resources to carry through developmental projects requested by their superiors.... Patron-client relationships shift constantly so that the tendency is to plan for the immediate event only. Moreover, innovative programs are introduced only in response to a superior's orders.

The crucial political arenas exist *inside* the bureaucracy, not on the outside, framed by ministry or departmental hierarchies. Any initiative that cross-cuts departmental lines will be ignored unless supported by a 'big man'.

5) *In many of the newer nations there is a sharp discontinuity between nationally-oriented and locally-stabilized personnel.* Members of the national elite often attended the same schools and rotate among assignments, acting within an integrative process that Jacobson (1973) portrays for Uganda. Authors describing francophone West Africa coined the term 'encadrement' for this process.

With the massive replacement of colonial bureaucrats in the 1960s each subsequent political generation inherited differing opportunities and advantages.* But all strive to retain a place in the national system, and all are subject to frequent transfer. Just *how* frequent is not known, but in the extreme instances one wonders how the organizations survive. In the 1960s Currie reported that while serving as planning advisor in Colombia he dealt in one year with three successive state governors and eight successive mayors of the state's largest city (1966:127-128). Schramm cites another Latin American development program that had 35 percent of its authorized staff resign in one year (1978:198). From Iran Amuzegar reported a 50 percent annual turnover in one community development team, and 70 percent turnover of trainees and qualified technicians in an externally assisted audio-visual unit (1966:159).

We expected such rates would decline once the pool of skilled manpower in an LDC became adequate, but often they have not. Staff relocation apparently serves to solve sundry personnel problems, and to limit the cultivation of a localized power base by members of the national elite. Moris (1972:122-23).

The responsibility for program continuity then devolves on ancillary staff and lower cadres, denied access to the national elite because of their lack of technical, professional, or ethnic qualifications. In Africa these are sometimes people whose qualifications would have been adequate a decade earlier—before the flood of university graduates. They may harbor strong resentment against the system: hence my designation of them as a "trapped elite" (Moris 1972:121). Harrison in Nigeria (1969), Leonard in Kenya (1977), and Saylor in Tanzania all found that the better educated staff in the bottom extension cadres had lower morale and worse performance. At the very bottom one reaches the contact cadre or "bicycle men" with the least resources, training, ability, and motivation of all. The strong barriers between well qualified top officials—who sometimes work very hard—and the poorly performing bottom staff is accentuated by the rapid circulation of higher officials among assignments. It is a case of the blind leading the lame.

6) *The unreliability of supporting services (constant breakdowns, missing records, etc.) is reinforced by the shared expectation that staff at any level cannot be dismissed except for the most flagrant offenses.* In the Tanzanian system an offender is not subject to dismissal until after three written warnings which must be approved by a usually defunct "workers disciplinary committee." The cheaper solution is to transfer the individual, preferably to a punishment post in a remote rural district. This de facto ban against the discharge of staff has a powerful consequence: it is hard to rectify minor lapses in performance. As these minor indiscretions are aggregated through an entire system, they give ample excuse for lapses at higher levels. A system that cannot discharge its workers usually cannot sack managers either—a perennial problem under socialism as portrayed by Dumont for Cuba (1970) and Wheeler for Czechoslovakia (1973).

*As shown in Leonard's study of Kenyan extension workers (1977:104-128), which is an excellent source on many aspects of organizational productivity in an LDC setting.

B. Requisites of Managerial Effectiveness

The above administrative traits can be viewed as boundary conditions. They strongly affect the effectiveness of various managerial tactics one might employ within the system. And they imply that there is no universal practice of "good management" which will yield equivalent results in all systems.

Since the mid-1960s studies in the US have shown that similar results can be achieved under contrasting modes of management, and that the outcomes of any management style will be mixed. To cite just one study, Mullen found that in a large insurance corporation (whose records permitted clear performance measurement) three managers characterized as authoritarian, permissive, and recessive produced equally effective results. Other outcomes important to different groups within the organization varied, and each pattern carried with it both positive and negative performance features (Mullen 1966:122-133).

More recently Ouchi and Price have proposed that a *clan* type of organizational structure—which they term "Type Z"—is a valid alternative to bureaucratic hierarchy as a mode of company organization, and probably outperforms it in many settings (Ouchi and Price 1978). Their proposal is an excellent illustration of the need to treat administrative performance as resulting from complex trade-offs between the conflicting needs of individuals, bureaucratic structures, the organization, and the larger society. Championed initially by Lorsch and Morse, this has come to be known as the *contingency approach* in American management (Lorsch and Morse 1974, Newstrom et al., 1975). It underlies our treatment of management issues throughout this book.

To extend this viewpoint to LDC settings we need to conceptualize "folk management strategies"—that is, characteristic modes of communication, task organization and interpersonal relationships which allow the individual manager to accomplish what the system expects. To some extent these will constitute individual ploys—e.g., Type A and Type B stress management patterns—but there may be larger patterns which most incumbents within a given system share.

We can say with some certainty that US managerial tactics do not always travel well. The US technician who

upon arrival in Africa becomes compulsively preoccupied in preparing and revising work plans is a case in point. The individual feels, of course, that he or she is employing a "scientific" approach to task organization, and that one must begin with the formulation of a time-phased work-plan. But the setting is characterized by uncertain events, flexible commitments, and highly unreliable scheduling. Any locally experienced manager will see that the technician who is trying to save time is often actually wasting it on an inappropriate strategy for task organization.

Folk management strategies differ not only between cultures but also between individuals. They can be learned, and also unlearned (but with difficulty). Management is as much a part of the individual's folk culture as is any other aspect of life. Perhaps an anthropology of management will be necessary if we want to predict the success of inter-cultural administrative efforts. The anthropologist Belshaw warns (1976:155):

> Social scientists have paid far too little attention to the ethnosocial science of public decision-makers—to the task of revealing the conceptions that politicians, managers, and civil servants have about the nature of human interaction and the social structure and organization within which they work.

It does seem that the conditions portrayed above in a typical LDC system encourage a distinctive management style—at least among the more effective managers—where the person in charge assumes many responsibilities which otherwise will not be met. In the short run the system's weaknesses cannot be changed. By dint of extra effort a manager may personally supply the coordination, supervision, and control sufficient to keep the unit's activities on target. Tasks can be broken down into small components which do not require special skills. The manager can personally intervene to see that the activities of a ring of subordinates mesh in the ways necessary to achieve a larger product (Moris 1972, 1976:422-424).

This "hub-and-wheel" mode of task delegation is relatively efficient for accomplishing small-scale, time-bounded projects in a difficult environment. Indeed, where there is no real administrative infrastructure and many linking services are absent, it may be the *only* way to generate output in a short period of time. In the longer run, the "hub-and-wheel" structure is a severe constraint in any program too large and too complex for one person to coordinate. It has the added disability of stultifying junior staff members. When the manager leaves, someone like him must be found to take his place. The structure persists so successfully that in black Africa today one can still usually tell which incumbents are filling the "European" positions (Jacobson 1973).

Compensatory Management Tactics

In carrying out any LDC field program, one soon learns routinely to employ tactics to compensate for the weaknesses in the system. Some of these are:

1) Pay tremendous attention to detail, since almost any item can go wrong.
2) Follow-up all important matters personally ("bird-dogging").
3) Build a large redundancy factor into all aspects of operation.
4) Establish direct personal contact with authorities before initiating any formal requests ("personalismo").
5) Adjust day-to-day activities to fit immediate opportunities, instead of arranging schedules far in advance.
6) Use simple but effective control devices to insure that organizational resources do not melt away.

The congruence of these tactics with the larger pattern of over-centralized task organization is obvious. Caiden and Wildavsky provide an illuminating discussion of the redundancy factor (point three), which they found characteristic of financial budgeting in many poorer countries (1974:68-78). One could assemble many examples to illustrate these strategems, which are much used in LDC settings.

This line of argument underscores the need for detailed case materials for use in management education. From our bibliography studies of adequate depth include Reining (1966), Jellicoe (1978), Chambers and Moris (1973), Van Rensburg (1974), and Zandstra et al. (1979). One wants accounts that represent how decisions are actually reached: the rivalries between individuals, errors of timing and effort, conflicting assessments based on incompatible values, and all the other stuff of day-to-day administration. What we are usually given in the guise of case studies are accounts, pre-edited to conform to general expectations about economic rationality. Publishers often reject detailed materials because these are said to be unscientific!

The Practice of LDC Management

What one notices about project management from an insider's perspective is the large input of energy one expends on essentially manipulative and political tasks. In the humid tropics, the energy output required for successful management is itself a major constraint. Managers probably work longer hours in temperate zone systems (Mintzberg 1973:29-44), but one feels the energy drain more acutely in the tropics. You discover that with reasonable luck you can average *one* task completed each

working day: a letter typed, a vehicle serviced, a report drafted—compared to Mintzberg's finding that chief executives average 36 pieces of mail, 5 telephone calls, and 8 meetings per day (1973:30). Much of an LDC manager's time will be spent on trivial but essential tasks (rushing to town to buy tubes of mimeograph ink). A commitment to both achievement and to power seems necessary. This accounts, I suggest, for the attitudes shown by the more experienced technical assistance managers who have been charged of wrongly (the World Bank's opinion) usurping the executive functions assigned to their counterparts. As Globerson expresses it, in Spitzberg (1978:163):

> A senior assistance officer with 25 years of experience in developing countries expressed a view shared by many execution experts: 'I prefer not to waste too much of my time on training counterparts, the way young experts do, because if I am not going to do the work myself nobody else will do it.'

In truth, training new staff to perform complicated tasks *is* time-consuming and inefficient, in situations with high rates of staff turnover, where so much of the task integration must be supplied by the central individual. Add the load of maintaining performance under tropical conditions and you have a recipe for acute role conflict irrespective of the personality of the individuals involved.

The management consultant called upon to assist systems of this type needs to formulate two quite contrasting sets of interventions: measures which will in the short-run increase the effectiveness of personnel within the system as presently constituted; and long-run devices which one hopes may make the "hub-and-wheel" mode (or other pathologies one may encounter) unnecessary.

Anyone put in charge of a rural development project should anticipate a multiplicity of demands, many of which will not be identified in any textbook. The most critical functions include:

1) Matching people to assignments which make use of their special strengths
2) Safeguarding performance specifications while negotiating the design and implementation of field programs
3) Remaining alert to issues under consideration at a particular moment within the larger administrative system
4) Insuring that all parties to a key decision have advance personal knowledge of the issues at stake
5) Identifying and securing commitment for all important components that depend upon outside support
6) Providing contingency arrangements to back up all key components if their supply is at all problematic
7) Identifying those items requiring long start-up times, so that preliminary actions will be taken in time
8) Exploring unofficially the political feasibility of all required measures for project implementation
9) Learning and acknowledging the constraints which each party involved in a negotiation feels to be binding
10) Establishing realistic decision rules and deciding when general regulations must be ignored or overridden.

Such actions have an obvious bearing on project success, but *they are not for the most part definable skills which can be transferred by formal instruction.* Herein lies a useful distinction between 'administration' and 'management'. Administrative skills are in large part routine. Managerial responses consist of diverse actions taken to meet changing demands. They are much less amenable to routinization, as Schaffer argues in Leys (1969). The expectation that management can be reduced to an assemblage of human relations skills is a distinctive American bias. It assumes an underlying stability of organizational contexts. There are those who assert that high level management cannot be *taught*; it must be *developed* (Revans 1971).

C. Problematic Features of Western Management

The universalist claims of Western management have been challenged by three decades of technical experience. This is not adequately recognized in the management training programs one encounters in LDCs, and in the overseas training of LDC managers-in-the-making.

Anthropologist Edward Hall (whose books remain classics) was the first to document the implications of cultural difference for management principles and practices, along with George Foster (1973:175-196). Other relevant accounts include Benveniste and Ilchman (1969:29-40), and Alverson (1977).

At least four strong themes or common features of Western management run counter to the organizational realities of most LDCs. Unwitting assumptions that these features readily apply in poor countries can lead to friction and trouble:

1) *A bias towards commercial industrial practices.* Many of the broad generalizations in US textbooks derive from American commercial practice and are quite possibly not true even of US public sector management—a point Self has stressed (1972:248-68). Much contemporary management theory grows out of recent American organizational contexts. It seems likely that management research accurately portrays traits and trends, but fails to recognize how deeply these are rooted within the larger systems of American corporate life. When American managerial technologies are interjected into

alien administrative environments, their culture-and-system-bound nature becomes more apparent (if not always to the Americans who come bearing these gifts).

2) *The commoditizing of time.* In Western management time is segmented, linear, can be bought, saved, sold, and is compressible—e.g., a shortage of time can be offset by increased investment. Time is *accounted for.* Time commitments are binding. If not, the non-obligatory nature of such commitments must be clearly indicated to all parties. Time is treated to accord with the demands of a modern industrial system; other conceptions are equally feasible in human affairs. The framework of temporal referencing in which time is budgeted, programmed and controlled by accounting suits and indeed is deemed fundamental to particular organizational systems. Both Hall (reflecting US business experience) and Alverson (reporting Peace Corps reactions) note that Americans tend to become disoriented and upset when their expectations about the commoditizing of time are not met in recipient settings.

There is more to this than just a contrast in tempo (Americans are famous the world over for their desire to hurry things, to "get down to business" with a most inappropriate gusto). It seems to reflect an underlying difference in priorities. In some societies the view is held that different classes of events will take their own time. The American insistence that time scheduling should command relationships and events is not intrinsic even to our own type of economy. In France or Switzerland, for example, television interviews may run over the hour. It makes more sense at an intuitive level to let the importance of the event influence its own timing. Rigid scheduling of the kind one encounters in the US and Japan represents a deliberate commitment to se[illegible]e, to allow arbitrary scheduling mechanisms priority in determining the flow of events. It increases the illusion that things are under control.

3) *The uncoupling of management from control:* In American management practice the internal systems for accountancy—time logs, expense vouchers, etc.—are sufficiently powerful, detailed, and reliable that the manager can ignore many day-to-day aspects of supervisory control. We do not like to associate management with authoritarianism and superior power; the boss is friend and colleague. When taking unpleasant actions (as in firing a worker), the manager can make it appear the *system* requires this step ("I'm sure you understand; our budget for next year..."). Some of the contemporary management literature even suggests that control is not a legitimate part of the managerial function.*

*But see Russell Stout, Jr., *Management or Control? The Organizational Challenge*, for an incisive analysis of the basic relationships (Bloomington: Indiana University, 1980).

Supervisory structures in third world administrative systems tend to be based on quite different presuppositions. In ex-colonial states elaborate control mechanisms may be officially in force but seldom used. There is also a difference in the relative scarcity of resources: how do you control vehicle use in an organization where even the senior staff may not have their own cars? The manager finds his personal intervention is continuously required to maintain even a semblance of control in field activities. If this power is not exercised—as does happen now and then when visiting American experts fill a position—system performance quickly deteriorates. On the other hand, Americans evidence great faith in legal constraints, and recommend the passage of enabling legislation as almost the first step in the creation of any new institution. In other systems both citizens and administrators avoid recourse to the law if at all possible; they find the prominence given by Americans to lawyers and legal instruments puzzling. The massive export of US legal practices as a necessary accompaniment of US aid and multinational enterprise bears witness to the centrality of this aspect as the underlying feature of not-so-subtle control in Western management (Gardner 1980).

4) *A faith in magic procedural sequences:* Much of contemporary applied managerial analysis concerns finding magic sequences: the series of steps which will always yield optimal outcomes. We teach our international extension students how to apply the Beal and Bohlen model of decision-making to resolve community problems—a model containing thirty-six discrete steps (Beal and Blount 1966). These steps do appear to yield the predicted outcome in settings *which are congruent with the method.* But there is no a priori reason why events will generally be resolved in any one set sequence outside of a laboratory. The belief that a particular information processing sequence is imperative for good planning is typically American, and goes along with US managerial technologies.

The management consultant's insistence that planning procedures occur in standardized sequence becomes an invisible burden imposed on the LDC, and helps account for the unpopularity of economic planners within their own field organizations. The necessary information can be obtained, but rarely in the precise sequence of administrative procedures that the planning methodology specifies (Bendavid-Val and Waller 1975).

Fadism in technical assistance

Another Western trait in rural development assistance is the short cycle of support given to any one type of program. The past two decades display a continuing tendency to adopt new cures before earlier remedies are fully tried, long before the lessons of experience can be absorbed.

For example, the dominant themes in the early 1960s were land reform, community development, and economic planning. These were superceded by manpower planning, cooperatives, and land settlement. By the end of the decade, excellent studies synthesizing land settlement experience began to appear, but already its moment had passed. The emphasis in the early 1970s was on youth unemployment, nonformal education, intermediate technology, and the green revolution. Then attention shifted in the mid-1970s to regional planning, integrated development, the poor, and rural women. Now these are beginning to give way to a new cycle on farming systems, the transfer of technology, and program management (hence this book).

These short and shifting cycles of program emphasis (on average about five years in duration) are usually out of synchronization with accompanying academic inquiry. To move from awareness of a new problem to a synthesis of field experience takes about six to eight years at a minimum. The short cycles of external aid mean that the donor agencies learn very little about rural development despite the many field interventions they sponsor.

D. Guidelines for Program Development

Experienced managers of rural development programs intuitively evolve ways to sense danger points and identify promising operational tactics. The term *tactics* is used advisedly, to indicate observations lie mid-way between broad intervention strategies and the day-to-day issues of routine administration. They mainly concern organizational development: the design of the implementation package, the creation of effective work teams, and the establishment of a project or program on the ground. Insights of this nature are commonly missed in project case studies.

One cannot, however, complain about the quantity of rural development case studies. Major collections include: Borton (1967), Bunting (1970), Dumont and Mazoyer (1973), Ghai et al. (1979), Goodman and Love (1979), Grindle (1980), Hunter et al. (1976), Islam (1974), Manzour and Coombs (1974), Morss et al. (1976), Niehoff (1966), Sheffield and Diejomaoh (1972), Weitz (1971), and Wharton (1969). Attempts to review the regional experience of each continent include: for Latin America (only partially covered in this volume), Adams (1967), Duncan and Rutledge (1978), Hirschman (1963, 1971), Nelson (1973), and Paddock and Paddock (1973); for Asia, Asian Development Bank (1978), Inayatullah (1979), and Palmer (1976); for Africa, Anthony et al. (1979), Blume (1971), Cliffe et al. (1977), de Wilde (1967), Hance (1977), Lele (1975), Lofchie (1970), McCloughlin (1970), and Morgan (1974). Those who have attempted overall syntheses include: Abraham (1980), Coombs and Ahmed (1974), Dopfer (1980), Hayami and Ruttan (1971), Hewes (1974), Harwood (1979), Hirschman (1967), Hunter (1978), Lele (1976), Johnston and Kilby (1975), and Millikan and Hapgood (1967), Mosher (1976), Reynolds (1975), Rondinelli and Ruddle (1978), Szczepanik (1975), and Weitz (1976). Other comprehensive sources that deal more with unstructured change include: Inkeles and Smith (1974), Rogers and Shoemaker (1971), Rogers and Svenning (1969), Schram and Lerner (1976), and Zaltman and Duncan (1977). Finally, there are a few reviews of socialist development: Dumont and Mazoyer (1973), Dunman (1975), Jackson (1971), Nove (1980), and Palmberg (1978).

What one misses are discussions of the strategic contexts that make a given policy a good choice in one country and a bad choice in another—in short, a contingency theory of rural development. At the program and project levels, academic researchers fail to understand that very salient features may not get reported in official documentation. These will be quite distinct from the substantive rationale any competent manager can give—costs, benefits, sequencing, operational difficulties, etc.—to justify why actions are taken. It is the *implications* of a given decision for program development that usually do not get reported. What general guidelines can we summarize from the experience we have reviewed in this book?

Common Features of the Program/Project Setting

1) *Underdeveloped countries often have overdeveloped institutions.* A low level of material development does not imply a simple administrative system. Some of the poorest nations have the most elaborate public service structures. It is this highly differentiated and complex bundle of agencies that one must come to terms with in sponsoring rural development.

2) *The location of projects will be a political matter.* Political leaders while expecting technical input on the design of projects, tend to see project location as being a political concern. If a program includes components where the locational aspect must be technically guided (deep-well drilling, road building, the siting of a processing industry, etc.), expect conflict.

3) *The more the levels, the more uncertain will be the outcome.* Every agency or level that is added to the decision-review chain introduces further sources of delay, modification, and misinformation. As the total bureaucratic matrix becomes more complex, so also will the chances of realizing sustained action at the local level become increasingly remote.

4) *Externally sponsored autonomous projects are likely to be self-defeating and non-replicable.* The principal danger is that local officials will view the project's resources with great jealousy. Once the project ends its

resources will be dispersed and its innovations cancelled (usually they cannot continue without greater support than the local system can supply).

5) *Contact cadres will usually be the weak link.* Again and again one finds the contact staff have the least resources and lowest motivation in the hierarchy. Unless the structural features responsible for this situation are tackled early in the life of a program, its success will not continue once outsiders withdraw and the weaknesses at the contact level reappear.

6) *Cultural blockages are more likely to be administrative than social.* In technical assistance programs, the impression persists that social factors are influential in constraining technology transfers. There are some cases of this nature—encouraging pig production in Moslem villages, for example. More commonly the more significant cultural features influencing program attainment are the hidden premises of authority and action *within* the administrative system.

7) *Outside experts will not view political constraints as "real".* Scientists generally and Western technicians particularly are trained to believe that their professional competence is based on universal and "real" principles. They treat political constraints as external to their frames of reference and hence in some mysterious way irrelevant—"not my problem" When there are political factors of great importance to program success, do not expect that experts will necessarily regard them as either significant or binding on technical actions.

8) *Modernization before agricultural development presents special difficulties.* In the poorer LDCs the processes of education and involvement in mass culture may precede the transformation of agricultural production. Such settings are prone to uncontrolled urban migration and to various backwash effects which make agricultural opportunities seem unattractive by comparison. Once such attitudes become incorporated in family expectations, they become very difficult to counteract.

Some General Tactics of Effective Program Development

1) *Always remember that persons are more critical than programs.* Get the right person in charge, and a broad range of program options becomes feasible. Most successful projects have at least one key individual who spends from three to five years getting the project underway. With the wrong person in charge even a well designed program will fail. The strategy for finding and keeping key managerial staff (expatriate and local), and for creating a team effort on the ground, is something we know little about in LDC contexts.

2) *Allow twice as much time as planned.* Major rural development efforts in a new environment require about three years to establish infrastructure, three more to achieve an identifiable local presence, and perhaps four to six years before the full impact becomes visible. This means from ten to fifteen years are needed before any larger project can be adequately assessed. But technical assistance is these days subject to short planning horizons, two to four years. The reliance on such time horizons for measuring output means that planning is based on econometric time, an "as if" world that runs at about twice the pace of real time.

3) *Note that success in early years will be a function of public relations skills.* Since cost/benefit analysis assumes direct output increases from the initial expenditure of funds, and since this does not occur until several cycles of experimentation get the system into operation, "success" within the first two to three years depends on a team's ability to fabricate results. The articulateness and public relations' expertise of program leadership at this phase is vital for securing the renewal of funds that may allow the team to achieve what it has been claiming all along.

4) *Note: Cost/benefit criteria may be inappropriate.* Where the administrative services function in the lower half of their potential efficiency, a unit's *record of past performance* and *not* its projected cost estimates is what must be watched. In such contexts, expect that the economic criteria used by outside experts in assessing projects (or potential contractors in the commercial field) will often give misleading results.

5) *Look for propitious timing in the political environment.* Especially within top-down bureaucracies, the readiness of the president or a powerful minister to initiate a major program carries great weight. At the right time even a relatively modest input can achieve wide impact. When external timing is not favorable a very large effort may yield but meager returns.

6) *Avoid structures that overlap bureaucratic jurisdictions.* In any top-down administrative structure, joint tasks shared with other arms of the bureaucracy are exceedingly difficult to carry out. Any bottom level function which requires support from more than one agency will suffer. In some countries the problem is so severe that projects in this situation will be left to wither and die. Since overlapping projects are sometimes necessary, to give them a fighting chance at least one agency should be designated as parent, and should have sufficient resources to carry the project even if other inputs fail.

7) *Avoid working against the grain.* There are often features of a program which seem necessary from the expert's standpoint, but which are directly contradicted by trends in the local environment. When experts insist on such items, they must realize the chances of failure are magnified. In general, one should try to design programs so they will work with the grain of local trends, and so reap the benefits of a contagious spread of their impact.

8) *Limit the number of innovations attempted.* Once in operation most field bureaucracies have only a small

capacity to sustain new innovations or to modify unilaterally their working procedures. Each innovation introduced entails a major effort by the management in explaining, justifying, training, and assessing performance. An innovation uses up its originator's social capital within the organization. It is important to decide clearly on one or two key changes which all efforts can be concentrated upon until they are secure.

9) *Anticipate layered obstacles.* Success in one sphere—e.g., introduction of a new technology like cattle dipping—will lead to new constellations of problems (marketing efficiency, input supply, corruption, etc.) present all along but masked by the initial difficulty. Programs that have as their goal human betterment should anticipate that the focus of program effort will have to change over time, as one problem after another is dealt with. The obvious problem from a design standpoint is that the hidden obstacles often cannot be specified in advance, and so will not be listed within the initial scope of program activities.

10) *Getting sporadic activities into established routine is critical.* The danger of unfocused problem-solving as a response to changing environmental demands is that it places too much weight on the energy and expertise of the change agent. Because tropical agriculture is so diverse in its problems and needs, successful rural development depends upon creating within the service delivery system decision rules and routines which can substitute for and minimize ad hoc problem-solving.

11) *Use successful projects as a seedbed for staff development.* In place of formalized training programs, probably the most effective strategy for manpower development is to rotate staff through a rural development program that is already in operation. Once a prototype has evolved which works in a given environment, it can be made the mother project which supports new projects and trains their staff on-the-job on an exchange basis.

12) *Remember: external technicians will not be effective for about eighteen months.* The overseas technician arriving for the first time in a country usually cannot exert much influence until months have passed. Previous experience in a similar system shortens this period, but as a rule it is the technician's second tour of duty (most contracts these days are for 2 years) that counts.

13) *Creating self-renewing leadership is the hardest step.* Many projects depend on a few key individuals during their early years. There is always the danger that with the transfer of the key person a project will lose momentum and eventually fail. The ultimate test of a successful program is whether it has created leadership and support groups which are self-renewing beyond the life of the initial project.

Principles of Intelligent Programs and Projects

1) *Innovations must lower the level of risk for participators.* Commercial innovations often require high levels of managerial skill or procedural familiarity. Peasant farmers may lack both, and such innovations increase the levels of risk in the farming system. A critical need in new programs is to find ways to minimize the riskiness of participation.

2) *To be visible, benefits at the farm level must be substantial.* Farm activities are subject to many masking influences (rainfall, pests, price fluctuations, etc.). Unless the benefits of an innovation are fairly obvious (at least 25 percent) they may not be *perceived* even though they are physically present.

3) *An initial key must be regular access to cash income.* Until local farmers have a viable cash crop not subject to excessive risk they will not use purchased inputs regularly, nor undertake other initiatives requiring cash except in very small amounts. Finding a stable and attractive cash crop can be an impetus for a cluster of related innovations which would not be viable if individually introduced. Unfortunately, this means that questions of marketing efficiency, demand, and transport cost enter at an early stage, perhaps before the necessary infrastructure is in place.

4) *Recurrent and not capital costs are the real financial contraint.* Even poor peasants can raise surprisingly large amounts of capital on a one shot basis to build facilities they genuinely want, e.g., a clinic or a bridge. What peasant farmers have great difficulty in providing is the continuous financing necessary to support a given service month after month. Projects should direct a major portion of their effort towards encouraging a steady cash flow within the community, which can then be taxed to support introduced services. The timing of cash payments for crops may also need to be adjusted, so that periods of financial "boom" coincide with payment obligations within the production system.

5) *Avoid expanding welfare services before the production base.* The larger share of perceived problems in many tropical countries relate to public welfare: improved water supplies, better health services, and more schooling. When programs focus primarily upon felt needs as the initial base for mobilizing farmers, there is real danger that in the longer run the social service expenditures will overbalance the development of production services, leaving an insufficient economic base for the community's continued development.

6) *Avoid loan financing at the initial stages.* To use modern financial services *profitably*, one must have considerable budgetary and managerial skills, as well as familiarity with banking and its procedures. Peasant farmers in many LDCs have grown accustomed to being

excused from repaying government loans if they experience adverse circumstances. The attempt to collect on bad loans is very destructive of a change agent's local influence. For these reasons loan financing should *not* be the method of approach to the poorer and more backward farmers.

7) *Understand the systems consequences of technology transfer. They differ from immediate effects.* It is fairly easy to select individual items of technology whose adoption by farmers can substantiate claims of project success. What technicians have not understood is that the long-run systemic consequences of an innovation may be different from immediate benefits realized by early adopters. Some innovations confer quick benefits to a few early adopters but harm the well-being of the group (Cummings 1978). Similarly, there are innovations which do not have a high individual payoff but which are important to safeguard the group. It is the systemic consequences which result from the interplay of an innovation and the receiving system which are the more important—and these have rarely been evaluated in past programs.

8) *Never bypass local officials in dealing with farmers.* Except in the rare instances where services do not exist or a program has the special blessing of the president, it will always be unwise to ignore or bypass the existing hierarchy of local leaders. *First,* by definition technicians are only temporarily on the scene. *Second,* farmers will reach their own conclusions about the purpose of contacts initiated by outsiders. Farmers can and must be involved, but at the initial stages *through* the local leadership.

9) *Small successes are preferable to large failures.* Where previous projects have failed it is very important to build confidence based on actual experience of a mastery of local problems by the group. Overambitious goals at the start carry the risk that a failure will further harden people's expectations that "things always fail here." Aim for a sequence of small victories as the first step.

Conclusion

A colleague with long experience in rural development noted that the foregoing observations are not the kind of positive guidelines USAID and the World Bank want for use in their field programs. We anthropologists have a tendency to dwell in the minefields of culture conflict, while ignoring the safe ground in between. I close this chapter therefore with a rephrasing of these lessons in a positive idiom:

1) Find the right people to lead a project and let them finalize its design if you want commitment and success.
2) Keep supervision simple and the chain of command short.
3) Build your project or program into the local administrative structure, even though this will seem initially to cause frictions and delay.
4) If the program aims at achieving major impact, secure funding and commitment for a ten to fifteen year period.
5) Put the project under the control of a single agency, and see that the agency can supply all necessary external inputs.
6) Work through local officials when first approaching farmers.
7) Attempt major projects only when the nation's top leadership is ready for change and willing to support the program.
8) Find ways to utilize momentum already within the system to amplify project productivity.
9) Get sufficient flexibility of goals and funding to deal with new problems as they arise without reformulation of the program.
10) Make choices about projects and contractors based on records of past performance.
11) Insure that the field team has somebody good in public relations during the early years before impact materializes.
12) Be prepared to locate activities wherever politicians point.
13) (But) as a rule try to locate agricultural projects in areas that have not been heavily influenced by prior urbanization.
14) Treat political constraints as real if you wish to survive.
15) Recruit the core staff from those who have already done at least one tour of duty in an area.
16) Find ways to minimize the riskiness of participation for farmers who are joining a program for the first time.
17) Choose innovations for farmers that give at least a 25 percent increase on present practice.
18) Aim to establish a high value cash crop at an early stage if farmers do not already have such a source of income.
19) Start small and aim at complete success at each step.
20) Find a secure source of recurrent finance before expecting farmers to take over responsibility for their own production services.
21) Be sure to include a revenue producing component in any package of activities to be sponsored through farmers' groups or villages.
22) Concentrate efforts on only one or two innovations at a time.
23) Make certain the contact staff in touch with farmers is adequately trained, supervised, motivated, and supported.
24) Identify and use the folk management strategies which managers rely upon within the local system to get things done.

25) Simplify scientific solutions to problems into decision rules that can be applied routinely without special expertise.
26) Look for the larger effects of an item of technology on the entire system before deciding upon its adoption.
27) Insure that experienced leaders have subordinates who do stand in for them on occasion, and that there is a pool from whom future leaders can be drawn.

CHAPTER TEN

Directions for the Future

Rural Development as an Emerging Discipline

The Econocrat Problem

Learning From Experience

Where to Go

What to Ask

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A. Rural Development as an Emerging Discipline

The last five years have seen an explosive growth of interest in rural development topics, as our bibliography attests. Either under its own name or under the label *Development Studies* rural development has attained disciplinary or semi-disciplinary status in countries of Africa, Asia, and Europe. There is an ample foundation of materials and concepts to warrant the emergence of rural development as an applied profession in its own right. Yet communication among members of this field is limited. Well-informed specialists often do not know of recent developments in closely linked sub-specialties. There is no single journal to keep the practitioner abreast of trends.

The main reason is the interstitial nature of the profession. It intersects about ten academic disciplines. Important sub-areas which overlap the jurisdictions of the conventional disciplines include:

Topical Area:	*Parent Disciplines:*
1) Development economics	economics
2) Applied anthropology	anthropology
3) Underdevelopment theory	Marxian sociology
4) Rural sociology	US sociology
5) International agriculture	agricultural economics
6) Nonformal education	extension, education & communication
7) Development administration	political science, public administration, management
8) Urbanization & modernization	geography, demography, sociology
9) Rural & regional planning	economics, geography
10) Technology transfer	agriculture, engineering

The parent disciplines usually accept topics that lie within their respective domains (engineering is the last field still claiming universality) but they rarely give equivalent legitimacy to topics growing out of cognate disciplines. Thus the intellectual supports which disciplinary organization usually supplies—consolidation of experience, refinement of methods, and peer recognition—are grievously lacking in rural development.

The Consequences of Not Being a Structured Discipline

It would not matter whether rural development practitioners are housed in one, ten or twenty disciplines if it were not for the basic functions that disciplinary organization plays in contemporary scientific effort. Disciplinary consolidation powerfully affects what its members consider significant (Kuhn 1970). The problems studied by science are not given by nature. They emerge from the need for selectivity in using scarce organizational resources. In each academic discipline there are at any moment leading practitioners who identify the interesting problems and promising methodologies. These priorities are communicated informally among those on the leading edge of disciplinary research. Their work becomes the model which neophytes emulate. Through the interplay of disciplinary rewards--peer recognition, grants, professional publication, career advancement, and ultimately textbook writing—certain topics and methods get substantial attention. Other topics—typically those on the borderline between disciplines (such as land tenure or farm credit)—may be taken up now and then, but they do not experience sustained growth (see Kuhn's discussion of anomaly, 1970:52-65).

Kuhn's viewpoint implies a distinction between the producers and validators of scientific knowledge. The student of rural development discovers that the product of field research is reviewed by two sets of validators, neither of whom share the producer's perspective. Applied results are (in principle at least) passed into the workaday world where political action takes place. The policy-makers (to dignify them with the label they prefer) judge a piece of work by its recommendations. "Good results" should meet most of the following conditions:

1) They should promise to be cost effective, worth the time and effort expended in obtaining them.
2) They must be politically feasible within the scope of constraints *perceived by the policy-maker.*
3) They should be technically sound in all basic respects. It is assumed the researcher will know enough to screen out suggestions which are technically unsound.
4) They must be essentially valid, near enough to actuality so that actions predicated on them will have the intended consequences.
5) They should be unique, in the sense of fitting the situation and adding something the policy-maker does not already know.

To meet these criteria is difficult. Aggregating data *up* a multi-stage sampling design is a lot easier than disaggregating it *downwards* to reach valid policy recommendations! Neophyte field researchers usually fail to meet these conditions in their first few assignments. Some are so obtuse (and well-trained academically) that they never do. The epithets thrown at disciplinary science by the workaday world are generally deserved, since policy-makers want particular solutions to concrete cases.

The same results must pass screening by social science authorities, who are almost invariably male university

professors with considerable seniority. They are often unfamiliar with the situations studied, and lack a continuing interest in the resolution of its problems. They want generalities which test the global paradigms of the parent discipline. They allow interdisciplinary and problem-focussed courses—"Yes, do take a course on land tenure"—but they may not treat them seriously. They are pleased to see a research monograph appear (as evidence of a student's industry), but pay scant attention to the use made of it once published. In short, the kind of sustained inquiry necessary for developing new insights into complex "undisciplined" problems is not stimulated. Again and again American graduate students are encouraged to emphasize the *methodological* aspect of their study at the expense of substantive results.

When we itemize the main socio-economic problems which have arisen in development efforts, their intersectoral nature becomes obvious, as Moore argues (1974). These problems are:

1) increasing population pressure on the arable land
2) accelerated environmental stress and desertification
3) collapse of traditional crafts and non-monetized production
4) declining earnings from exported primary products (generally)
5) decreased ability of villages to supply social security internally and for the industrial sector
6) increased capital intensity of modern industry
7) accelerating rural-urban migration leading to slums around the major cities
8) widespread unemployment of school leavers
9) increased socio-economic differentiation
10) emergence of the landless poor as a class
11) intensified burdens for women, and sometimes a breakdown of family life
12) continued marginalization of peripheral districts
13) accelerated bureaucratization in communities too poor to support a resident officialdom
14) intensified tribal and sectional conflicts, sometimes necessitating coercive control measures
15) increased expenditures on capital intensive weaponry.

On top of all these *systemic* problems the average LDC must cope with uncontrolled inflation, uncontrolled energy costs, floods, droughts, famine, terrorists, cholera outbreaks, coups and even civil war.

The irony in this listing is that the individual components have received a great deal of research attention. But the linkages among these items are trans-sectoral while the individual variables are exhaustively and separately studied out of context. Economics deals with factor proportions but pays little heed to the institutional settings which embody these proportions and condition their expressions. Demographers deal with migration rates but fail to examine the perceptions within a population that predispose individuals to move or stay. Engineers advise on new technology but remain blind to the backwash effects of technological change in the receiving system. And so it goes, each discipline feeling virtuous for devising procedures to analyze some aspect of rural development, but none dealing with these factors linked up into common systems.

The standard divisions of effort yield analytical results that are unsatisfactory in several respects (beyond the obvious point of their low predictive power):

1) The models often incorporate simplifying assumptions which invalidate their use for prescriptive purposes
2) Disciplinary conventions sometimes bring about a reversal of real-life causal connections (as when investment is made the cause and not the effect of development)
3) The final recommendations typically bring in the other factors, but treat them out of systemic context and in greatly summarized form, so the policy implications suggested often turn out to be either ineffective or wildly impractical.*

This tendency in academic social science prescriptions was made vividly apparent some fifteen years ago at the Kericho Conference—a major gathering of international experts which the Ford Foundation hoped would generate a rural development program for Kenya. Each profession put forward suggestions which other modes of analysis showed stood little chance of success in the real world. The conference was unable to resolve the contradictions. Its report edited by Sheffield (1967) contains much the same mix of mutually incompatible recommendations one has seen ever since. Whether or not one is a Marxist, it does seem clear by now that the major difficulties being experienced in the rural sector of most LDCs are *intrinsic to the overall system of development.*

That these outcomes are unintended goes without saying. But it is not unreasonable to insist that theories of development account for the trends we see emerging on every side. I suggest that the discrepancies between prediction and reality are now so wide and obvious that they signify a scientific anomaly in Kuhn's sense: a time to begin constructing radically different tools of analysis. What future explanations of our current malaise will say remains anybody's guess. My own choice of obvious points for departure is as follows. *First*, Schumacher was

*My own article on farmer training in the Sheffield volume (1967) is illustrative. Everything I wrote about the potential superiority of farmer training as a strategy of rural development remains broadly correct—but I failed to understand that in most African countries adult training takes an institutionalized form modelled on rote, primary-school learning which invalidates most of the intended effects.

almost certainly correct in insisting that conventional economics errs in treating renewable and non-renewable resources in the same framework (1973:48-51). Society has not yet learned how to price nonrenewable resources (or for that matter many public goods). This becomes an acute weakness in an industrial economy with the technical means to harvest resources cheaply.

Second, modern quantitative economics incurs tremendous danger when parameters are uncoupled from the institutional matrix that generates them in the first instance. Deductive finery is available in all the social sciences, but outside of economics the guardians of academia usually recognize that the complexities of real-world social organization must constrain what simplifying assumptions are allowable.

Third, the neo-Marxists are probably right in seeing our use of the concept of *capital* as a key flaw which mixes incompatible elements in ways that yield misleading prescriptions; the essay by Weeks in Clammer (1978:21-28) can serve as an introduction on this point.* Kay argues that contemporary analysis is insensitive to the relationships between productive investment and the velocity of exchange, with the consequence that mechanization and unemployment are *normal* features of development, independent of any particular form of ownership or dependence (see Kay 1975:145-153).

Fourth, for whatever theoretical reasons—Kay's explanation is the most convincing I have seen—it is clear that the worst effects derive from the transfer of mass-production technology—the style of capital-and-energy-intensive mechanization the US is adopting and has encouraged in other countries since World War II.

Fifth, the negative features of development seem to depend upon an iterative and synergistic interplay of feedback processes, where the causal components lie across disciplinary and sectoral boundaries—which perhaps explains why our current paradigms were so blind to what was going on. The individual mechanisms seem controllable, but they interact and are aggregated across the span of an entire nation, to generate policy dilemmas which exceed the state's problem-solving capacity. Any LDC experiencing most of the difficulties we have itemized will find itself in a situation of continuing crisis where leaders are reacting to rather than controlling events.

All lines of evidence point towards a major unresolved issue. We do not yet understand how to encourage interdependency within a modern exchange system without at the same time destroying prosperity in the smaller and more isolated units entering the system, unless by accident such units possess unique and highly valued resources under local ownership and control.** This point is true at varying levels of scale, and has been discussed by Brookfield (1975) and Whitman (1979) among many others in the literature on urbanization.*** So political and administrative mechanisms to protect the balance in the terms of trade between the rural and the industrial/urban sectors become the key to achieving longer run prosperity in rural communities not adequately served by market forces. In this regard see Lipton (1977). The success of some industrial nations in maintaining an attractive quality of rural life (France) or incomes (Japan) derives from such mechanisms, which are undervalued if we apply only the single criterion of efficiency to judge farming systems.

It would be instructive to compare the continued decline of rural communities in the US with the relative prosperity of similar communities in parts of Europe often denigrated by Americans as having an inefficient agriculture. In Africa it does seem that the potential of small-scale peasant agriculture has often been underrated, both by Marxist and Western economic theorists (for Asia, Johnston and others have made the same point). At heart Marxists fear the capitalistic roots of peasant agriculture, and they correctly perceive that a well-organized network of peasant-run cooperatives would be a potent alternative to Marxist scenarios for peasant revolution. Many Western analysts for their part see smallholdings as inherently inefficient, and therefore only a way station on the path to a new class of commercialized, large scale farmers. I suggest that in reality the peasant smallholder approaches, *when carefully organized*, have at this stage as good a record of achievement (investment generated, population successfully maintained on the land, etc.) as any of the alternatives.

The qualifying phrase, *when carefully organized*, remains essential, and spotlights *the missing dimension of administrative capability* in all theories of economic development, as we have argued throughout these chapters. One only needs to contrast the record of performance in the East Asian nations—which for various historical reasons achieved this capability—to that of countries like Burma, Tanzania, or Samoa, to see how essential the element of work discipline has been. But until this facet becomes a major ingredient in theories of development—capitalist or Marxist—we cannot claim to understand and address this phenomenon of such overriding importance to the LDCs.

*Supplemented by Lehmann (1979), Vogeler (1980), and Joan Robinson (1979) *Development & Underdevelopment*, London: Macmillan.

**See Selwyn (1975) and Demas (1976).

***The works by Dopfer (1980) and Freedman et al. (1973, 1976, 1980) view the issue from opposing sides.

B. The Econocrat Problem

To criticize the preponderant influence of economics in the analysis of rural development makes one feel like a tick complaining of the quality of blood it gets from its dog. All through these pages concepts and arguments derived from "folk" economics abound: opportunity cost, the differences of interest at individual and aggregate levels, and so forth. It then appears mean-spirited to insist that economics as a discipline has too large an influence in analyses of rural development, but that is what I suggest. Rural development suffers from an acute econocrat problem.

The designation *econocrat* is Self's (1975). It brilliantly gets to the rub of the issue. The literature on development overflows with uncomplimentary references to technocrats, giving one the image of hard-hatted engineers or khaki-clad agronomists busily encouraging laser-guided irrigation systems and four wheel drive tractors. Quite false: in the larger agencies of government one meets few such people. Instead, the great majority of technocrats are econocrats—ecoomists by training and outlook, but individuals whose work is the offering of the whole gamut of specialized staff services needed in rural development. What they do much of the time—designing application procedures, reorganizing ministries, deciding which district gets which project, etc.—is only tangentially related to economics in the narrow sense. The econocrat does the job of a high level administrator, planner, or advisor but is recruited as a development specialist; hence the necessity of an economics degree.

The rural development literature is being econocratized, seeming to deal with various field problems but on closer inspection subsuming each class of situations under omniverous economistic paradigms (for discussion of the "economistic fallacy," see Polanyi 1977:5-17). Many of the books in our bibliography evidence this trend. Since most projects nowadays must be validated by some form of either fiscal or economic appraisal (or both) and the technologies required are fairly demanding, the market continues to grow. Like the statistician skilled in regression analysis, the econocrat finds the world his oyster.

The Dangerous Allure of Economics

The ready applicability of economic concepts ought to forewarn us that they do not fit very tightly the phenomena they purport to explain. All human activities can be conceptualized as having costs and benefits (or inputs and outputs, if you prefer), just as any choice in circumstances of scarcity can be subjected to economic analysis which delivers nontrivial and sometimes unexpected results. E.g., Grossbard's (1976) economic analysis of the scarcity of wives in Maiduguri. The emergent field of public policy in the US depends on this fact, and is at core simply the application of economic modes of analysis to political and governmental phenomena.

The dangers in this approach can be illustrated by comparison with a parallel situation in American rural sociology. By the 1960s it seemed that diffusion research (the five step awareness-trial-adoption sequence, aggregated to yield cumulative diffusion curves) could be used to explain the acquisition and spread of nearly any innovation (Rogers and Shoemaker 1971).

I used this approach in my own Ph.D. research in eastern Kenya (Moris 1970). Only after considerable fieldwork did I realize that the catholicity of the practice-adoption paradigm is an *artifact of its procedures*. By definition a considered decision usually involves various information sources, the weighing of alternatives, and a test of the innovation. So a fieldworker employing this approach among farmers will almost always return with full questionnaires. When the evidence is analyzed, it gives nontrivial results. (The number of adoption studies stimulated by American rural sociology probably runs to several thousand.) But the results remain partial and artificial. They ignore many of the significant causal factors in a local setting. They ignore the local institutional context except insofar as the institutions happen to be pegged into the question matrix ("information source"). And they do not portray the actual salience of factors which farmers consider most important in making decisions at the local level. That one can document "facts" required by the observer's framework does not mean that the *significant* explanatory factors have been tapped; it merely indicates the analytic frame is a general one (and for this reason less likely to achieve predictive or correlational power in given settings). The volunteered reasons Embu coffee farmers gave for dealing with an innovation when questioned in depth were quite different from the "data" produced by the diffusion research methodology. Cf. Trend (1978).

Precisely the same relationship of analyst to field reality obtains when economists write or advise about rural development. Some of the limitations of economic analysis are by now well recognized, particularly the need generated by economic paradigms to treat decision-making in a synoptic and linear frame (see the discussion in chapter two of 'blueprint models'). As we pointed out, Killick (1976) has extended the basic objections raised a generation ago by Lindblom, Simon, March and others into a frontal attack on centralized economic planning. The irony is that his arguments (and he writes from experience as a professional economic planner in Ghana and Kenya) apply with equal force to most forms of economic analysis when used to guide public policy decisions. The evidence is pretty clear that real public policy does not conform structurally to the simplifying assumptions needed if economic analysis is to be applied directly to public affairs. But since these assumptions are so central to the

economist's paradigm, we should not expect economics to take much account of this sharp discontinuity between theory and situation.

There are additional faults not so widely recognized. A serious one from the standpoint of agricultural development is the radically disembedded nature of economic model-building, with its elegant mathematical formulations unhooked from real-world constraints. It is as if the mathematics are believed to control forces and the institutional matrix is merely a conceit borrowed from the physical sciences, where parameters are firmly attached to real entities. Modern econometrics finds it embarrasing and methodologically quaint to take account of institutional structures. For this very reason, economic formulations are not reliable guides for particular practical affairs which always will be strongly constrained by institutional contexts. It is the institutional linkages that give force to parameters, and not the opposite.

Because of the high level of aggregation which one must adopt in macro-economics, and because of the strongly deductive nature of most economic theory (whether Western or Marxist), economic analysis as we see it today is nearly unfalsifiable. There are by definition so many intervening variables creating statistical noise that the analyst can claim the original formulations are essentially sound. Here one must welcome the recent trend towards devising empirical tests of general theory (Adelman and Morris 1971, Chenery 1980, Feig 1978, Forrester 1973, Hayami and Ruttan 1971, Inkeles and Smith 1974, Morawetz 1977, Shaw and Grieve 1979, Vengroff 1977 and Whynes 1974) while recognizing the extreme difficulty of doing so adequately.

Micro-economic theory also presents problems. We are told it deals with the individual units that ultimately generate development. In LDCs it is widely assumed that economics is the science which tells us how development occurs. This belief is a central tenet of the LDC econocrat's personal ideology (Ilchman and Hastings 1968:13-42). But it is wrong. Relationships between inputs and outputs (production coefficients) are essentially proxy variables. They provide a criterion of performance but not a depiction of the internal linkages (production processes) which bring output about. Until a process is sufficiently interconnected so that output regularly occurs, measurements relating to the external parameters outside the analyst's 'black box' have no prescriptive value. It is only after internal actions of an administrative nature have brought the system into operation—across the linkage threshold, if you will—that narrowing attention to quantity flows at entrance and at gate becomes sensible. It is at the higher and not lower end of the continuum of organizational efficiency where the marginal analysis so beloved by Western micro-economists begins to acquire internal decision-making relevance. Because economics takes minimum levels of process interconnectedness for granted, it pays almost no attention to the administrative mechanisms which make production possible in the first instance. As Gordon warned in his 1976 presidential address to the American Economics Association:*

> Nor ... should we forget the extent to which conventional theory ignores how and why work is organized....

Instead econocrats tell us their science concerns mainly allocative decisions under conditions of scarcity—presumably *exactly* the situation of resource-starved LDCs. By definition economic analysis puts itself forward as *the* discipline which understands investment; and in point of fact it looks at little else. But we have seen that in the beginning phases the real-life LDC manager is heavily engaged in trying to solve linkage probabilities, etc.

Most of the things of immediate and imperative concern to the manager do not show in investment analysis except as residual factors: a checklist a page or two long of "other requirements". Any intelligent econocrat can produce a pretty impressive listing of residual factors, making the imbalance between the appraisal procedures and reality seem almost grotesque. Micro-economic analysis gives very partial coverage to real world activities at the start-up phase, and makes it appear that the significant thing to watch are the cost parameters. Students trained in the technology come out believing that in an LDC unit output mostly depends on the quality of allocative decisions. Few realize that economic analysis lifts the investment decision out of its operational context, and fails to address the more central issue of how one first creates continuing operational capabilities in situations where most supporting linkages are absent.

To wryly put the issue into an economic metaphor it is essentially one of the marginal utility of adding elaborate procedures to decision-making, if the procedures omit key factors and if the resources involved could be more productively employed elsewhere. Cost-benefit technology demands high level attention, and requires data not readily available in the field. Any method of elaborated planning will be most information intensive at the start-up phase, when the basic data requirements for arriving at decisions must be met. The appraisal technologies required by the World Bank, technical assistance agencies, and now Ministries of Economic Planning the world over, pre-empt the attention of hard-pressed field managers at just that point where program design occurs. They also guarantee bad data, since managers are forced to rely on junior staff to produce "statistics" in circumstances where a reliable statistical base does not exist.

*R. Gordon, (1976) "Rigor and Relevance in a Changing Institutional Setting," *The American Economic Review*, Vol. 66, no. 1, p. 3.

C. Learning from Experience

Why haven't these points been understood before now? An obvious reason is that no single discipline takes responsibility for analyzing the total system of rural development (though economics comes closest). An additional obstacle is the idealized image which the other social sciences hold about how science is applied in human affairs.

The Problem of Bad Theorizing

The inductive social sciences believe rural development is basically an *applied science*: a concrete manifestation of general principles. Up to the early 1960s it was felt the main aim of academic social science should be to formulate general statements which if verified at a high level of confidence from different social systems became the social scientist's equivalent of natural science "laws" (here see Stinchcombe, 1968). More recently (following Zetterberg, 1965), investigators abandoned the macro-theorizing of Parsonian sociology and American political science. Some of them have aimed instead at accumulating propositional inventories which could be tested axiomatically. The texts published in the 1970s, such as Roger and Shoemaker (1971) and Zaltman and Duncan (1977), abound in propositional statements, as if the road to science lies in the massive accumulation of particulate truth.* The definitional span of the concepts has been reduced (taking heed of Merton's plea for 'middle range' theory), but the expectation remains that the resulting propositions should be universally applicable. The field practitioner is still seen as the user of *general* social science. This false conception of the *praxis* or doing of real world science is at the root of the low level of success which inductive social science has achieved when attempting to resolve actual field problems. Field realities do not fit the general concepts which hold sway in social science.

We need to recognize that human social phenomena are like strips of velcro, loaded with hooks. Once snagged, a given linkage between two (but usually several) factors will constitute a strong adhesion not easily modified—try setting right a land reform program once the local officials have become corruptly engaged in it! But it appears the "snagging" propensity often lacks clear direction. It acquires its force-loading situationally. We can predict that a bond is likely to form, but we cannot specify its precise nature and location until additional information about the context is known. For example, prestige often becomes a powerfully charged ingredient in social situations, but if it is tied to a revival of traditionalism it may seem an "obstacle" to planned change, whereas in an innovative community it becomes a "facilitator." Many of the more interesting rural development components—land tenure, group authority, popular participation, competitiveness, etc.—seem to partake of this ambivalent quality. Some, such as mass primary education, seem even to evidence on occasion quite opposite effects, governed not only by immediate linkages but also by the overall pattern of the environment. Thus, when one reads Foster's (1973) account of "barriers" and "stimulants" to change, some of the same factors appear on both sides of the equation. If we must commit the reification fallacy, let us do so about *relationships* and not factors (though even the relationships can be variably expressed).

The Valence Problem

In their immediate settings many social phenomena acquire their "valence" from the aggregate "charge" of the system, a process akin to Merton's view of the 'self-fulfilling prophecy' which if acted upon in a proper social context will create the very conditions it predicts. More generally, once *either* positive or negative considerations begin to predominate in a decision network, the resulting polarization will independently affect subsequent decisions (our "backwards district" problem). At the level of a specific decision (which usually involves from ten to fifteen salient considerations) the system charge may not be evident, but nonetheless if one could abstract the flow of decisions aggregated through an entire network this might be revealed as a very influential feature. The "poverty cycle" is but one of several illustrations.

The Openness of Social Phenomena

Then there is the problem that social phenomena are emergent and nondetermined in the general sense (i.e., in regard to the expression of scientific "laws"). A given behavior will often constitute valid evidence for predictions made at differing levels of analysis. It simultaneously expresses propensities generated by society, the group, individual opportunity, psychological equilibrium, and biochemical functioning. The explanations of social phenomena are often *not* mutually exclusive. They only become so as an artifact of the simplifying assumptions needed to apply disciplinarily logical analysis. A concrete manifestation of social activity will retain a multiplicity of "extraneous" linkages (from the standpoint of any one analytical framework), and the determinancy posited by a given proposition is always

*See also Jack Rothman (1974) *Planning and Organizing for Social Change*, New York: Columbia Univ. Press, and G. Kushner et al. (1962) *What Accounts for Socio-Cultural Change*, Chapel Hill, North Carolina: Institute for Research in Social Science, Univ. of North Carolina.

subject to being overridden by other more salient needs of the moment. Because social life is an emergent phenomenon, social science which attempts to predict actual behavior cannot assume systemic discreteness in the way that natural scientists frequently do. We learn about reality by abstracting from it—obviously—but once we have pared away the many interconnections which every field situation evidences we have lost much of the ability to make concrete predictions.

Contextual configurations are almost impossible to predict on the basis of abstract social science. Invariably one discovers that the causal mechanisms operative in a given problem situation cut across analytic boundaries, and are specifically anchored in time and locale. We can easily move upwards to frame general propositions. But because of the embedded nature of social and organizational life we cannot then move downwards to apply such findings in other contexts. Almost always there will be found additional complications which the analyst will have failed to take into account. Analytic skill must be coupled to experience before it acquires utility—in a nutshell, this is what this book is all about.

D. Where to Go

The number of centers within the developed nations that are trying to consolidate knowledge about rural development greatly increased during the 1970s. Most of the growth occured in Europe. For the US, the commercial publishers (particularly Westview Press and Praeger) and university presses (starting with Wisconsin, Indiana, Harvard and California) remain the places to begin. For the post-1975 period the World Bank's staff papers are useful, followed by various university-based institutes such as the PASITAM program at Indiana University (funded by AID) or the MSU Rural Development series from Michigan State (and many others: Northern Illinois University on Southeast Asia, University of Texas at Austin on Latin America, etc.). Field materials are available from the Agricultural Development Council in New York and the East-West Center in Honolulu. Conspicuous for its lack of focussed publication is USAID, whose output compares poorly with the materials the Canadian Government is now producing from the International Development Research Center (IDRC) in Ottawa.

The most innovative academic coverage of rural development comes from across the Atlantic, from England where "development studies" has taken root, and from continental Europe now that the smaller nations have become deeply engaged in technical assistance. In England the university-based programs at Reading, Bradford, East Anglia (the Overseas Development Group), and Sussex (the Institute for Development Studies) have their own publication series, as does also the Overseas Development Institute (ODI) in London. In Germany we have the German Development Institute and the German Foundation of International Development in Berlin, and the IFO Institute in Munich (the latter having a major publication series with an African emphasis). Significant studies are coming from the ILO and the UN Research Institute for Social Development (UNRISD), both in Geneva. In France and Italy the UN headquarters for UNESCO and FAO produce the most materials, though not much that is exciting. The International Institute of Educational Planning in Paris has perhaps a better record, and there is a large body of French language materials on rural development which I have not even attempted to cover in this review. In Sweden we have the Scandinavian Institute of African Studies at Uppsala, and in Holland similar centers with a more general coverage of agriculture and rural development at Wagengingen and the Hague. In Israel there is the Settlement Study Centre at Rehovot. Most of these institutes maintain English language publications, and some appear more willing than American outlets to publish detailed case materials.

Thus, as the bibliography attests, one cannot complain there are insufficient materials on rural development for serious analysis. For anyone who has not worked in an LDC, the starting point should be materials which convey the flavor of life in a peasant village. Strongly recommended are Critchfield (1973, 1979), Harik (1974), Thomsen (1969) and Wiser (1978), supplemented by some of the better case studies of individual programs such as Van Rensburg (1974), Jellicoe (1978), and Zandstra et al. (1979). Excellent country studies are represented by Bates on Zambia (1976), Heyer et al. (1976) on Kenya, and Franda (1979) on India. The recent volume of country case studies by Ghai et al. (1979) is indispensible. On projects, Hirschman (1967) remains essential, followed by Rondinelli (1977). The literature on bureaucratic aspects of economic development is incorporated into Caiden and Wildavsky (1980). Finally, for an overview of our topic one should begin with Hunter (1978) and Rondinelli and Ruddle (1978).

E. What to Ask

Perhaps the root problem of the weaker LDCs is not, after all, their evident poverty. At many points I have nudged the reader towards asking different questions from those which have predominated in research and analysis during the last two decades of technical assistance. If for internal reasons a nation does not make sensible use of its resources, if investments yield little increase in output, and if it implements 'development' in ways that allow capital to deteriorate almost as fast as new capital is created—then further increments of manpower and finance will only reinforce present distortions. At the moment international assistance to the LDCs is almost entirely preoccupied with economic affairs, and

most of it entails a further bureaucratization of rural services. But when we review the types of low level changes so important for food and nutrition--innovations in diet, attitudes, sources of energy, and a reorganized farm labour force--one must query whether modern bureaucratic organizations and our capital intensive technologies are even the appropriate instruments, as Paddock and Paddock (1973) and Owens and Shaw (1972) have been insisting all along. Perhaps Whyte saw the issue most clearly when he stated the chief difficulty is in the organizational models men carry around in their heads (1967).

To conclude, I list seven priority problems as the agenda of unfinished business, where further analysis and experimentation is in order:

1) Existing rural services must be brought up to the minimum levels where they increase output rather than debase the value of money being spent in the rural areas.
2) Development activities must be transformed from sporadic efforts to a type of delivery system which yields predictable results and can replicate itself without outside assistance.
3) There remains a basic need to integrate participation and expert problem solving within the same overall structure, so rural villagers do not become even more alienated.
4) Many individual projects fail from weaknesses of administrative competence in implementation; we need to know how this capability is created and encouraged within field units.
5) The scale and types of technology being introduced are often quite unsuitable to rural needs.
6) Present administrative structures are not mobilizing the full resources of the community, including not only women but also youth, the aged, and the dispossessed.
7) Finally, few of the poorer nations obtain lasting results from the many experts, advisors, consultants, and projects lavished upon them. The productivity of such assistance should itself be critically examined.

BIBLIOGRAPHY ON RURAL DEVELOPMENT

Explanatory Note

This bibliography covers all the sub-fields of rural development, economic and social as well as administrative. Materials are appearing at an explosive rate, so this bibliography is incomplete. Even so, it should prove valuable.

Book coverage is confined mostly to the continental areas of Africa (particularly Anglophone Africa), Asia, and Latin America, with incidental references to Oceania and the Caribbean. For North Africa and the Mid-East, only Egypt and Israel are represented. Only major works are cited for the period before 1970. A number of sources published in the past year or so could not be examined, but are included since they will be accessible to students and users of this bibliography.

The periodical literature has not been reviewed to the same extent as have books and monographs. Rural development is comprised of many intersecting specialties, so students do need guidance to articles on particular topics. The coverage of articles is based mainly on work published in the last decade in the following journals (the abbreviations are those used when citing the source of a book review):[1]

Administrative Science Quarterly	ASQ
Economic Development and Cultural Change	EDCC
Journal of Development Studies	JDS
Journal of Developing Areas	JDA
Human Organization	HO
Rural Sociology	RS
Journal of Modern African Studies	JMAS
Journal of Southeast Asian Studies	JSAS
International Labour Review	ILR
Food Research Institute Studies (to '78)	FRIS

Major omissions include: 1) Materials from *World Development*, *Development Digest*, and unpublished Ph.D. dissertations; 2) several journals on administration (but especially the *Indian* and *Philippine Journal(s) of Public Administration*); 3) periodicals on Latin America; 4) English language materials published in Europe (especially the Sussex *Institute of Development Studies Bulletin*, the *Journal of Peasant Studies*, *Sociologia Ruralis*, and *Development and Change*); and, 5) two recent and helpful newsletters, the *Reading Rural Development and Communication Bulletin* and Michigan State's *The NFE Exchange*. Other rural development periodicals are listed in *Appendix I*.

Topical coverage is indicated below. Topics represented by 20 or more sources include: agrarian reform, the planning experience, foreign assistance, geography of development, land settlement, peasantries, poverty, project appraisal methods, project case studies, rural and national bureaucracies, rural employment, and rural development in general.

An attempt was made to identify the three best documented countries on each continent (though the choice of Peru as the third Latin American nation is not clearcut). The bibliography covers these nine nations in substantially greater detail, so that students can compare sectors between countries and can trace relationships down to the level of the farm and village.

Continent	*Major Coverage*[2]	*Minor Coverage*
AFRICA	Nigeria, Kenya Tanzania	Botswana, Zambia, Ghana, Senegal, Egypt
ASIA	China, India, Thailand	Bangladesh, Indonesia Philippines, Israel
LATIN AMERICA	Brazil, Mexico Peru	Colombia, Cuba

Appendix II gives addresses for organizations or publication outlets for sources included in the bibliography if these are not the usual trade outlets. *Appendix III* gives a partial listing of the organizational acronyms that are seen in the literature.

Sources which are themselves bibliographies are indicated with an asterisk (*), while some of the key case studies and sources on rural development have a double asterisk (**).

Finally, since this is a preliminary effort, assistance from readers would be welcome.

1. Other journals cited in reviews include: *American Anthropologist* (AA), *The Journal of Politics* (JP), *Latin American Research Review* (LARR), and *Pacific Affairs* (PA). All citations of reviews or editorial comment about a work's content are separated from the main citation by a hyphen. Inclusion of a review citation does not indicate concurrence.

2. A good introduction covering the recent country experience for China, India, Mexico, and Tanzania is contained in a special issue on economic development of the *Scientific American* (September 1980).

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Table 1

BIBLIOGRAPHIC COVERAGE BY TOPIC

20 or more sources:

Agrarian reform
China
Economic planning experience
Foreign aid & technical assistance
Geography of development
India
Kenya
Land settlement
Mexico
Nigeria
Peasants
Poverty
Project appraisal
Project case studies
Rural bureaucracy
Rural development, general
Rural employment
Thailand

From 10-19 sources:

Administrative training
Agricultural mechanization
American Indian development
Appropriate technology
Clientalism
Community development
Cooperatives
Dams & man-made lakes
Drought in Africa
Food aid
Family planning
Farm innovation
Gatekeepers, access bureaucracy
Green revolution
Irrigation
Livestock development
Nutrition
Participation
Peri-urban fringe
Peru
Philippines
Regional RD experience
Rice farming
School leavers
Small farmers
Socialist agriculture
Tanzania
Technology, general
Tropical agriculture
Women in development

Up to 10 sources:

Agricultural credit
Agricultural extension
Bangladesh
Basic needs strategy
Botswana
Caribbean, general
Community development
Development sociology
Egypt
Entrepreneurs
Field manuals
Fishing & fisheries
Ghana
Indonesia
Integrated rural development
Israel
Multinationals
Nonformal education
Organizational management
Pacific, general
Parastatals
Radical economics
Regional planning
Rural education
Rural health
Social science research
Volunteers
Water development

Table 2

TOPIC:	PERU	BRAZIL	MEXICO
Bibliography			
Description & Economy	Fitzgerald Lowenthal Philip	Henshall & Momsen Katzman Syvrud	Casanova Hellman
Planning & Aid		Daland	Benveniste
Administration & Bureaucracy			Grindle Smith Poitras
Agricultural Policy	Coutu & King	Martin Schuh	Ewell & Poleman Hewitt Venezian & Gamble
Rural Development	Long & Winder		
Major Programs	Dobyns Mangin	Robock	Climo, Gladwin Diaz-Cisneros CIMMYT, Myren
Land Reform	Eckstein Lehmann	Cline, Kluck Cehelsky	Eckstein Tai
Mechanization & Settlement	Dozier	Nelson	Dozier
Irrigation		Hall	
Rural Industry			
Education & Youth		Jallade Knight	
Urbanization & Poverty	Oliver-Smith	Jallade Shelton	Kern Eckstein Ginneken
Contact Politics	Hammel Orlove & Custred		Romanucci-Ross Veliz-I
Clientalism & Peasantries	Tullis Paige	Forman	Beltran
Semi-Arid Areas & Livestock		Johnson De Andrade	
Types of Rural Society	Lewellen	Shirley	De Walt, Belshaw Cancian, Avila Fromm & Maccoby

Table 3

TOPIC:	NIGERIA	KENYA	TANZANIA
Bibliography	Aguolu	Killick	Kocher & Fleischer
Description & Economy	Williams, Luckham Damachi & Seider Melson & Wolpe	Burrows Obudho & Taylor Leys	Mwansasu & Pratt Kim
Planning & Aid	Dean Wells, Stolper	Ghai Hotham & Hazelwood	Gordenker Gitelson
Administration & Bureaucracy	Adedeji Akinsanya Murray Oyediran	Chambers, Okumu Leonard Cliffe Trapman	Malhotra Barkan & Okumu Hopkins
Agricultural Policy	Igbozurike	Heyer & Senga Clayton	
Rural Development	Okpala Smock & Smock Ajaegbu	Heyer & Moris Barkan & Okumu	Karioki Barkan & Okumu
Major Programs	Harrison	IDS, Chambers Blume, Livingstone Winans & Haugerud	Boesen, Due Omari, Von Freyhold
Land Reform		Sorrenson Okoth-Ogendo	
Mechanization & Settlement	Kline	Harbeson	
Irrigation		Chambers & Moris	
Rural Industry	Schatz	Livingstone De Veen	MacPherson & Jackson
Education & Youth		Anderson, Ford Court, Brownstein	ILO Morrison
Urbanization & Poverty	Lloyd, Josepth Olatundbosun Gugler	Hake	
Contact Politics	Beer Charlick	Staudt, Mutiso Hjort	Ingle, Finucane Cliffe, Swantz
Clientalism & Peasantries	Nafziger	Marris & Somerset Leys, White	Hyden
Semi-Arid Areas & Livestock	Norman	Salzman, Lyman Dahl	Jellicoe
Types of Rural Society	Berry Lagemann	Edgerton	Knight

Table 4

TOPIC:	INDIA	CHINA	THAILAND
Bibliography		Blair	Hart
Description & Economy	Frankel, Sarkar Mellor Mandelbaum	Leys Imfield Eckstein	Landon Jacobs Skinner & Kirsch
Planning & Aid	Streeten & Lipton Hanson		Dixon Caldwell
Administration & Bureaucracy	Braibanti Venkatswamy Panchanadikar Heginbotham England, Hunter	Townsend Lampton Nelson	Haas, Rubin Mosel Neher Siffin, Riggs Rubin
Agricultural Policy	Hunter & Bottral Brown, Sen Day & Inerjit Dasgupta	Kuo Henle	
Rural Development	Melor, Franda Singh	Baum Damachi Dernberger Flora & Flora	Bennet Rubin
Major Programs	Shukla Mohan & Evenson Mayer	Bennet Hinton	
Land Reform	Lehmann Tai		Lin & Esposito
Mechanization & Settlement	National Council Farmer	Hsu, Hinton Stavis	Wong
Irrigation		Vermeer	
Rural Industry	Sen	Perkins	Holtsberg
Education & Youth	Heyneman	Bernstein Gamberg	Orr
Urbanization & Poverty	Atwood, Singh Mencher, Saghir Ahluwalia		Meesook London
Contact Politics	Eldersveld Nelson	Domes Cell	Moerman Haas
Clientalism & Peasantries	Breman Rosen, Saxena		Potter Rosen
Semi-Arid Areas & Livestock	Whyte		
Types of Rural Society	Kaufman Epstein Wiser, Nair	Johnson & Johnson	Calavan Hanks Van Roy, Ishii

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APPENDIX I.
RURAL DEVELOPMENT PERIODICALS

Periodicals are listed below alphabetically by title. Addresses and particulars for most can be located in *Ulrich's International Periodicals Dictionary* (1980). New York: R.R. Bowker Co.

Administration and Society (US)
Administration for Development (Papua)
Administrative Science Quarterly (US)
Adult Education (US, UK)
African Administration Abstracts (Morocco)
African Administrative Studies (Morocco)
African Review (Tanzania)
African Social Research (Zambia)
Agricultural Administration (UK)
Ceres (Italy)
Community Development Journal (UK)
Comparative Education Review (US)
Development and Change (UK)
Development Digest (US)
East African Journal of Rural Development (Uganda)
Economic Development and Cultural Change (US)
Educational Development Overseas (UK)
Etudes Rurales (France)
Human Organization (US)
IDRC Reports (Canada)
IDS Bulletin (UK)
Indian Journal of Public Administration (India)
International Labour Review (Switzerland)
International Review of Administrative Sciences (Belgium)
International Review of Community Development (Canada)
Internationales Asienforum (Germany)
Journal of Administration Overseas (UK)
Journal of Developing Areas (US)
Journal of Development Studies (UK)
Journal of Extension (US)
Journal of Modern African Studies (UK)
Journal of Peasant Studies (UK)
Journal of Southeast Asian Studies (Singapore)
Land Reform, Land Settlement and Cooperatives (Italy)
Latin American Research Review (US)
Nigerian Journal of Economic and Social Studies (Nigeria)
Pacific Affairs (Canada)
Philippine Journal of Public Administration (Philippines)
Population and Development Review (US)
Reading Rural Development and Communication Bulletin (UK)
Rural Africana (US)
Rural Development Abstracts (UK)
Rural Development Network, Overseas Liaison Council (US)
Rural Extension, Education and Training Abstracts (UK)
Rural Sociology (US)
Social and Economic Studies (Jamacia)
Sociologia Ruralis (Netherlands)
Stanford Food Research Institute Studies (US)
The NFE Exchange (US)
Third World Quarterly (UK)
World Agricultural Economics and Rural Sociology Abstracts (UK)
World Development (US)
World Politics (US)

APPENDIX II. INSTITUTIONAL ADDRESSES

African-American Institute
866 United Nations Plaza, New York, N.Y. 10017, USA
African Medical and Research Foundation
P.O. Box 30125, Nairobi, Kenya/or 27 Dover St., London W.1, England
Agricultural Development Council, Inc.
630 Fifth Ave., New York, N.Y. 10020, USA
Agricultural Finance Program
Ohio State University., 2120 Fyffe Rd., Columbus, OH 43210 USA
Bangladesh Rural Advancement Committee (BRAC)
3 New Circular Road, Maghbazar, Dacca - 17, Bangladesh
Bureau of Resource Assessment and Land Use Planning (BRALUP), University of Dar es Salaam, P.O. Box 35097, Dar es Salaam, Tanzania
Canadian Hunger Foundation
75 Sparks St., Ottawa, Ontario K1P5A5 Canada
Center for International Education
Univ. of Massachusetts, Amherst, Massachusetts 01002 USA
Center for the Development of Human Resources in Rural Asia (CENDHRRA), 2067 Dedro Gil Street, Santa Ana, Manila, Philippines
Centro Internacional de Agricultura Tropical (CIAT)
Apartado 67-13, Cali, Colombia
Centro Internacional De Mejoramiento de Maiz Y Trigo (CIMMYT), El Batan, Mexico
Clearing House on Development Communication
1414 22nd Street, NW, Washington D.C. 20037, USA
Dept. of Social Anthropology, Univ. of Stockholm
S-10691 Stockholm, Sweden
Development Alternatives, Inc.
1823 Jefferson Place, NW, Washington D.C. 20036, USA
East-West Communication Institute
1777 East-West Road, Honolulu, Hawaii 96822, USA
Food and Agriculture Organization (FAO)
Via delle Terme di Caracalla 00100 Roma, Italy
Ford Foundation
320 East 43rd St., New York, N.Y. 10017, USA
ICRISAT Liaison Office
23 Golf Links, New Delhi 110003, India
Institut Africain pour le Developpement Economique et Sociale (INADES), B.P. 8008, Abidjan, Ivory Coast
Institute for African Studies, Univ. of Zambia P.O. Box 900, Lusaka, Zambia
Institute for Development Studies, Univ. of Nairobi
P.O. Box 30197, Nairobi, Kenya
Institute of Cultural Action (IDAC)
27 Chemin des Crets, 1218 Grand Saconnex, Geneva, Switzerland
Intermediate Technology Development Group, Ltd.
9 King St., Covent Garden, London WC 2, England
International Agricultural Development Service (IADS)
1133 Avenue of the Americas, New York, N.Y. 10036, USA
International Development Institute
Indiana University
400 E. 7th St., Bloomington, IN 47405, USA
International Development Research Centre (IDRC)
Box 8500, Ottawa, Ontario K1G3H9, Canada
International Extension College
131 Hills Road, Cambridge, CB21PD, England
International Institute of Rural Reconstruction
Silang, Cavite, Philippines /or 1775 Broadway, New York, N.Y. 10019, USA
International Institute of Tropical Agriculture (IITA)
PMB 5320, Ibadan, Nigeria
International Rice Research Institute (IRRI)
P.O. Box 933, Manila, Philippines
Land Tenure Center
Univ. of Wisconsin-Madison, Madison, Wis. 53706
Liklik Buk Information Centre
P.O. Box 1920, Lae, Papua, New Guinea
London Intermediate Technology Publications
9 King Street, London WC2E 8HN, England
Management Sciences for Health
One Broadway, Cambridge, Mass. 02142, USA
Nonformal Education Information Center,
513 Erickson Hall, Michigan State University
East Lansing, Michigan 48824, USA
Overseas Development Council
1717 Massachusetts Ave., NW, Suite 501, Washington, D.C. 20036, USA
Overseas Development Institute (ODI)
10-11 Percy Street, London W1P OJB, England
Programmes for Better Family Living (PBFL)
P.O. Box 30470, Nairobi, Kenya
Rockefeller Foundation
1133 Avenue of the Americas, New York, N.Y. 10036, USA
Rural Development Committee
Cornell University, Ithaca, N.Y. 14853
Scandinavian Institute of African Studies
P.O. Box 2126, S-750 02 Uppsala, Sweden
Social Work and Research Centre, Tilonia 305812
Madanganj, Ajmer, Rajasthan, India
UNESCO Press
7 Place de Fontenoy, 75700 Paris, France
United Nations (for all US orders of publications)
UNIPUB, 650 First Ave., P.O. Box 433, Murray Hill Station, New York, N.Y. 10016, USA
United Nations Economic Commission for Africa
P.O. Box 3001, Addis Ababa Ethiopia
UNICEF Public Information Division
United Nations, New York, N.Y. 10017, USA
Volunteers in Technical Assistance (VITA)

3706 Rhode Is. Ave., Mt. Ramer, Maryland 20822, USA

World Bank
1818 H Street, NW, Washington, D.C. 20433, USA

World Education
1414 Sixth Ave., New York, N.Y. 10019, USA

World Health Organization
1211 Geneva 27, Switzerland

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Further US addresses and a listing of organizations are contained in:

International Agricultural Development Service
(1980) *Agricultural Assistance Sources*, 3rd ed., New York: 1133 Avenue of the Americas, New York 10036.

For a comparable listing from the United Kingdom, see:

Overseas Development Institute
(1978) *Development Guide*. London: ODI jointly with George Allen & Unwin.

APPENDIX III. ORGANIZATIONAL ACRONYMS

ADB	African Development Bank, Abidjan, Ivory Coast
ADB	Asian Development Bank, Manila, Philippines
BRAC	Bangladesh Rural Advancement Committee, Dacca, Bangladesh
BRALUP	Bureau of Resource Assessment & Land Use Planning, Tanzania
CADU	Chilalo Agricultural Development Unit, Ethiopia
CAFRAD	African Training and Research Centre in Administration for Development, Morocco
CIAT	International Center for Tropical Agriculture, Colombia
CIDA	Canadian International Development Agency, Ottawa
CMEA	Council for Mutual Economic Assistance, also known as COMECON
DAC	Development Assistance Committee of the OECD, or Western powers
DANIDA	Danish International Development Agency, Copenhagen
ECA	United Nations Economic Commission for Africa, Addis Ababa
EEC	European Economic Community
FAO	Food and Agriculture Organization of the United Nations, Rome
GATT	General Agreement on Tariffs and Trade
GTZ	German Agency for Technical Cooperation
IADS	International Agricultural Development Service, New York
IBRD	International Bank for Reconstruction and Development The World Bank, Washington D.C.
ICAP	Central American Institute of Public Administration
IDA	International Development Association, an arm of the World Bank
IDAC	Institute of Cultural Action, headed by P. Freire, Geneva
IDB	Inter-American Development Bank, Washington D.C.
IDE	Institute of Developing Economies, Tokyo
IDRC	International Development Research Centre, Ottawa, Canada
IDS	Institute for Development Studies, Nairobi, Kenya
IDS	Institute for Development Studies, Sussex, England
IITA	International Institute of Tropical Agriculture, Ibadan, Nigeria
ILCA	International Livestock Centre for Africa, Addis Ababa, Ethiopia
ILO	International Labour Office/Organization, Geneva, Switzerland
INADES	Institut Africain pour le Developpement Economique et Sociale, Abidjan, Ivory Coast
IRRI	International Rice Research Institute, Manila, Philippines
MISR	Makerere Institute of Social Research, Kampala, Uganda
NFE	Non-formal Education Information Center, Michigan State Univ.
NISER	Nigerian Institute of Social and Economic Research, Ibadan
NORAD	Norwegian Agency for International Development, Oslo
ODI	Overseas Development Institute, London
ODM	Ministry of Overseas Development, United Kingdom
OECD	Organization for Economic Cooperation & Development, Paris
OPEC	Organization of Petroleum Exporting Countries
OXFAM	Oxford Committee for Famine Relief, United Kingdom
PASITAM	Program of Advanced Studies in Institution Building and Technical Assistance Methodology, Indiana University
PBFL	Programmes for Better Family Living, Nairobi, Kenya
RDA	Rural Development Abstracts, Commonwealth Bureau of Agric. Econ.
SIDA	Swedish Agency for International Development, Stockholm
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Program
UNEP	United Nations Environmental Programme, Nairobi, Kenya
UNESCO	United Nations Educational, Scientific and Cultural Organization, Paris
UNIDO	United Nations Industrial Development Organization
USAID	U.S. Agency for International Development, Washington, D.C.
VITA	Volunteers in Technical Assistance, Maryland, USA
WAERSA	World Agricultural Economics and Rural Sociology Abstracts, Commonwealth Bureau of Agricultural Economics, United Kingdom
WARDA	West African Rice Development Association, Monrovia, Liberia
WHO	World Health Organization

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