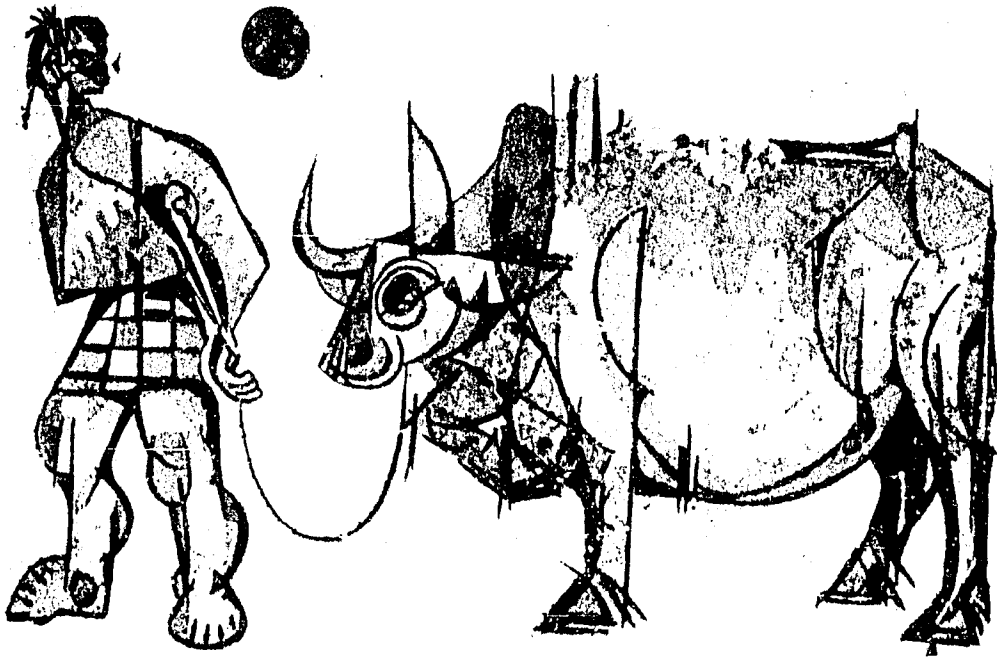


CORNELL UNIVERSITY

RURAL DEVELOPMENT COMMITTEE



Special Series on Local Institutional Development No. 5

**Local Institutional Development
for Agriculture**

by

**Norman Uphoff
Katy VanDusen**

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SPECIAL SERIES ON LOCAL INSTITUTIONAL DEVELOPMENT -- No. 5

**LOCAL INSTITUTIONAL DEVELOPMENT
FOR AGRICULTURE**

A report prepared by Norman Uphoff and Katy Van Dusen
for the Rural Development Committee, Cornell University,
with support from the Office of Rural and
Institutional Development, Bureau of Science and Technology,
U. S. Agency for International Development

October 1984

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PREFACE TO SPECIAL SERIES ON LOCAL INSTITUTIONAL DEVELOPMENT

This series of reports presents the findings of a year-long study by our working group on Local Institutional Development (LID). It was sponsored by the Rural Development Committee at Cornell University and was funded by the Office of Rural and Institutional Development in USAID's Bureau of Science and Technology.

Our initial concern was whether local institutional development could be adequately provided for by approaching it on a sector-by-sector basis, or whether it represents something needing and warranting attention across sectors. As with most "either-or" questions, there turned out to be some merit in both views. Certain issues and provisions are particularly relevant for developing local institutional capacity for certain sectors. At the same time, individual sector-specific initiatives are likely to lead to neglect of more broadly-based capacities, which themselves are important for sector-specific kinds of LID.

Our analysis offers a firmer conceptual base for the often but ambiguously used terms "local" and "institution." It analyzes what kinds of LID are likely to be most appropriate for the different activities frequently initiated in rural areas. Finally, it examines how local institutional capacity can be strengthened by national and donor agency efforts.

Throughout the analysis, we draw on the experiences with LID which emerged from a review of the literature. Cases which proved particularly instructive are reported in annexes at the end of the reports. Not all readers will be interested in all the activity areas covered by our study, so we have organized the presentation of findings accordingly.

Five of the eight reports (Numbers 2 through 6) are sector-specific, and readers may have particular interest in just one or two of them. We trust that all readers will find the introductory report (Number 1) useful, as well as the observations and suggestions contained in the concluding reports (Numbers 7 and 8) which are relevant across sectors. The full series is listed on page ix.

In condensing our observations and conclusions into these reports, we have not been able to include all of the case material and literature references which were covered in our study. We now know how broad and complex is the subject of local institutional development. Our discussions in this series present only what appear to be the most tenable and salient conclusions. We plan to integrate these analyses into a

book-length presentation of the subject for readers wishing a single continuous treatment of LID.

Though this project involved an extensive literature search and review on our part, it must still be considered more exploratory than definitive. Few of the available materials addressed LID issues analytically or even very explicitly. We thus cannot and do not attempt to provide "recipes" for local institutional development. This is an initial mapping of some important terrain not previously surveyed systematically. We welcome any and all efforts by others to contribute to the understanding and practice of local institutional development by adding to a more thorough knowledge base.

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SPECIAL SERIES ON LOCAL INSTITUTIONAL DEVELOPMENT

- No. 1 ANALYZING OPTIONS FOR LOCAL INSTITUTIONAL DEVELOPMENT
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Peter Doan, David Douglas and Norman Uphoff
- No. 3 LOCAL INSTITUTIONAL DEVELOPMENT FOR RURAL INFRASTRUCTURE
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Rebecca Miles Doan, Gerard Finin and Norman Uphoff
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- No. 8 MOBILIZING AND MANAGING ECONOMIC RESOURCES FOR
LOCAL INSTITUTIONAL DEVELOPMENT
Rebecca Miles Doan, Gregory Schmidt and Norman Uphoff

LOCAL INSTITUTIONAL DEVELOPMENT FOR AGRICULTURE

1.0 ACTIVITIES IN AGRICULTURAL DEVELOPMENT

Agricultural development in any country basically involves improvements or increases in three categories: technology, resources and institutions. Identifying or devising appropriate new technologies, and then getting them effectively disseminated, is extremely difficult. Mobilizing and managing the money, manpower and other material inputs needed to take advantage of technological opportunities is not much easier. Given the effort required to deal with technology and resource issues, it is not surprising that the additional attention and energy necessary to foster supportive institutional arrangements are often lacking.

Institutional development must often seem like an extra burden or obstacle in agricultural development programs. Yet it is as essential a part of such programs as the technology and resources provided for. Most of what effort has been put into institutional development for agriculture to date has been devoted to establishing or strengthening national institutions.^{1/} Here we are concerned with the development of institutional capacities for supporting agricultural development at the local level. We begin with these basic analytical understandings:

- * Agriculture requires converting natural resources, including plants and animals, into useful products through the application of human resources, which are made more productive by the use of capital -- infrastructure, equipment, credit, etc.
- * Local institutional development (LID) for agriculture is more complicated than for the activities reviewed in Report No. 2, 3 and 4 (natural resource management, rural infrastructure, and primary health care) which provide inputs to agriculture, because two different kinds of institutions, or potential institutions, are involved: (i) units of production, and (ii) supporting institutions.

^{1/} An important exception has been the many programs or projects to set up "cooperatives" in developing countries. But the way these have been introduced has been too often ill-conceived and mismanaged, producing caricatures of co-ops with little value and little longevity (e.g., Hamer, 1981; for review of experience, see Bennett, 1983). The "community development movement" also engaged in local institution-building, but seldom with an agricultural capability, one of the reasons for its decline (Holdcroft, 1978; Upnoff, Cohen and Goldsmith, 1979; Blair, 1982). Even some of the current work on "farming systems" is surprisingly preoccupied with national-level institutions (e.g., USAID, 1980). Reasons for including local institutions in farming systems work are elaborated in Whyte and Boynton (1983).

- * The activities of agriculture fall into three sets: (a) acquiring or preparing inputs, (b) turning them into products through labor and management efforts, and (c) handling the outputs to best advantage, as listed on the next page.
- * Over and above these activities, there needs to be support for agriculture in the form of favorable policies and investments from institutions at the national and regional levels, e.g. in research, extension and infrastructure.
- * The complexity of agriculture comes in part from the variety of units and institutions which are involved and the difficulties of getting a good "fit" among the sets of institutions. We will be focusing in this monograph mostly on what we are calling supporting institutions.

Activities are focused at different levels which range from the individual to the international arena, as discussed analytically in Report No. 1. In the figure below, we show in somewhat abbreviated form the levels at which activities concerning agriculture may be undertaken, and the sets of functions to be considered when thinking through appropriate LID for improving agriculture. Figure 2 on the next page identifies more specifically the input, production and output activities involved.

FIGURE 1: LEVELS AND FUNCTIONS FOR AGRICULTURAL DEVELOPMENT

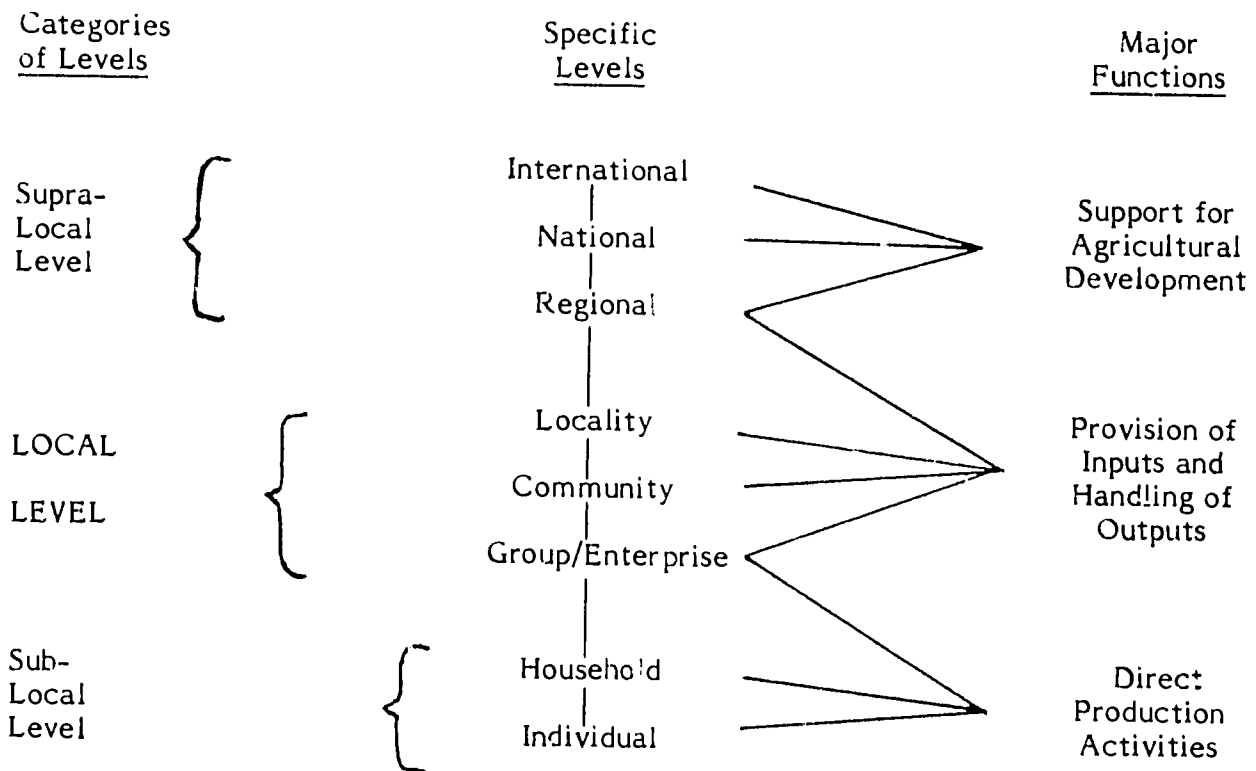


FIGURE 2: AN ANALYSIS OF AGRICULTURAL ACTIVITIES

- I. INPUT ACTIVITIES -- commonly mediated by local institutions
 - A. PHYSICAL INPUTS
 1. Seeds and seedlings: purchased, exchanged, preserved
 2. Fertilizer: chemical fertilizer usually channeled through local institutions; other sources of nutrients, animal manure, green manure, compost, more often provided by households
 3. Chemicals: herbicides, insecticides, fungicides
 4. Traction: oxen or buffalo power, tractor power
 5. Implements: plough, hoe, shovel, machete, etc.
 6. Veterinary medicines
 7. Animal feed: fodder usually provided by households; other feed often purchased
 - B. CAPITAL INPUTS
 1. Short-term (production) credit, for crop season
 2. Medium-term credits, for equipment or other purchases
 3. Long-term credit, most often for land purchases
 - C. INSTITUTIONALIZED INPUTS -- usually managed by national institutions
 1. Land access: land tenure systems, rental or share-crop arrangements, etc.
 2. Technology: information about new products, practices or techniques, commonly developed through research and conveyed through extension system; may use communications or education systems
 3. Policy: price relations, subsidies, etc.
 - D. INDIRECT INPUTS -- considered in Reports No. 2, 3 and 4, respectively
 1. Natural resource management: preservation and provision of soils, water, forest and natural resources
 2. Rural infrastructure: roads, water supply, housing, etc.
 3. Human resource development: education, literacy, health, etc.
- II. PRODUCTION ACTIVITIES -- usually carried out by individual producers; may involve some exchange of labor or inputs like traction power; do not often entail real pooling of resources with joint risk

A. LABOR

1. For annual crops
 - a. Land preparation, fencing, etc.
 - b. Planting, including possibly nursery work
 - c. Thinning and weeding
 - d. Fertilizing
 - e. Plant protection, pest and disease control, bird scaring, etc.
 - f. Water management (where irrigation possible)
 - g. Harvesting
 - h. Seed selection (re-starts cycle of production)
2. For perennial crops (same as under 1, except)
 - a. Less frequent land preparation and planting
 - b. May involve grafting and/or pruning
3. For animals
 - a. Feeding, includes grazing as well as bringing fodder
 - b. Housing
 - c. Disease control
 - d. Milking, shearing, slaughtering, etc.
 - e. Breeding

B. MANAGEMENT -- decision-making activities which:

1. Procure or ensure inputs (covered in section I.)
2. Mobilize, coordinate, supervise labor inputs (section II.A.)
3. Determine amount, kind and duration of production
4. Ensure balance between inputs and outputs to achieve a value of latter greater than former

III. OUTPUT ACTIVITIES -- commonly mediated by local institutions

- A. STORAGE: post-harvest and/or post-processing
- B. PROCESSING: manually and/or by machine
- C. TRANSPORTATION: for processing, storage and/or sale
- D. MARKETING: wholesale and/or retail

Note: At the point where produce is sold to a non-household enterprise, it is generally considered that "non-agricultural" enterprise begins. This classification is conceptually objectionable, equating sector with kind of unit, but the boundary between what is "agriculture" and what is not will be invariably somewhat ambiguous.

Production is carried on by individuals, by households and by groups or enterprises, the three lowest levels in Figure 1, with households being the most common locus of production activity (Ralston et al., 1983: 34-35). The provision of inputs and handling of outputs, in contrast, ranges from the group or enterprise level through the community level and up to the locality or possibly the regional level. This schematization indicates that no input or output activities come directly from the national level to production units. All need to be mediated through intervening institutions, many of them "local." It also points to the various, less proximate supports that come from regional or higher levels and are not really "local" in nature. A great range of levels are involved in agricultural development, and if the structures and capabilities at any one level are lacking, the whole system will function less satisfactorily.

Hunter (1980) has summarized the four main problems which governments and donors confront in agricultural development as:

- (1) the large number of farmers who will make their own decisions about how to run their own farms (in addition to which there is a large non-farm-owning rural population who survive by pursuing a wide variety of other activities, many of which affect agricultural possibilities);
- (2) the large variations in physical, social and political environments between communities and localities;
- (3) the great variety of facilities and activities involved in agriculture; and
- (4) the difficulties in coordination and organization of a complex series of ministries, extension services, marketing boards, corporations, authorities, cooperatives, local governments, etc.

In light of these requirements, there may be some temptation to try to manage this far-flung, demanding task from above. But the very magnitude and complexity of the task, and the limitations on coordination from above being achieved at field level, make increasing local capacity part of the solution rather than just another part of the problem (Rondinelli, 1984:74-88, 136-140).

Local institutions can help to reach large numbers of small producers in scattered and remote locations. They can achieve economies of time in communication with producers, and economies of scale in handling the inputs and outputs involved in an improved agriculture. Moreover, they can augment external resources and management with funds, labor, information and other local inputs. Local institutions are useful for adapting programs and activities to the variety of conditions encountered in the rural sector, so as to use scarce human and material resources to best advantage.

Perhaps most important, for dealing with the variety of facilities and activities involved in agricultural development, local institutions make possible more planning and coordination from below to relieve some of the burdens on higher-level administrators and technicians.^{2/}

What is becoming known as "the fiscal crisis" in underdeveloped countries will become, if anything, more severe in future years. Even in the event that central government personnel have enough commitment, knowledge and talent to pursue a transformation of the agricultural sector, they are unlikely to have the material means. Accordingly, the role and capability of local institutions will have to increase if agricultural development is to be achieved in the years ahead. The concomitant "energy crisis" facing LDCs, even if it abates somewhat in its financial dimensions, will continue in physical terms and will reinforce a tendency to move away from large-scale, capital-intensive patterns of investment, toward the kind of dispersed, labor-oriented development efforts more appropriate to management by local institutions.

^{2/} The conventional model of bureaucracy presents inherent contradictions when it tries to achieve coordination of activities across departmental lines. Coordination requires horizontal communication with a view to accommodation and adjustment which contrasts with the vertical patterns of communication in bureaucracy which aspire to command and control. Within a bureaucratic structure subordinates are accountable only to their administrative superiors and will have little interest in taking risks or incurring inconveniences that benefit clients (unless the latter are organized or powerful enough politically to influence superiors to discipline any poor performance of subordinates). To the extent that staff of any organization are accountable to clients (such as customers of enterprises or voters in a local government jurisdiction), coordination is more attainable since customers, users or voters will be able to assess bureaucratic performance better than superiors ever can.

2.0 LOCAL INSTITUTIONAL OPTIONS

Local institutional development for agriculture as we have said covers both production units and supporting institutions, though we will be focusing on the latter. Production units usually take one of three organizational forms, but especially the first:

- (a) private operations, usually household enterprises, though in more "modern" agriculture they may operate as corporations;
- (b) cooperative enterprises where individuals pool productive resources and share both risk and output, with decisions made on the basis of one-person, one-vote rather than in proportion to resources contributed; and
- (c) state-owned enterprises, operating according to public laws and with public resources.

Household enterprises are "not local institutions" as we have defined the term. LID does not seek to develop them as institutions but rather to assist them by government and donor efforts which strengthen supporting institutions. The other two kinds of production units are considered local institutions but we will not deal with them except in passing. We find few production enterprises that are true cooperatives in the sense that all inputs including land are pooled and production is shared accordingly.^{3/} Cooperative enterprises that provide inputs for members' own production qualify as "supporting institutions" rather than as production units. State enterprises in agriculture will not be analyzed because they are seldom productive, for reasons we need not elaborate.^{4/}

^{3/} A study of farmer organizations in the communal (tribal) areas of Zimbabwe found that "production groups" were the most common form of agricultural organization (35%). Yet even here, the pooling of resources included only labor, implements and draft power, but not land, and each member received the produce only from his or her own fields (Bratten, 1983). A review of mutual aid work groups by Ralston et al. (1983:106-107) supports this generalization that real cooperative production is unusual.

^{4/} State farms in Ghana, for example, were spectacularly unprofitable (Miracle and Seidman, 1968). Experience in other countries has been similar if not so extreme. Some "group" farming has been moderately successful (Wong, 1979), but the state is seldom a good manager of agricultural production. Collective agriculture in China has been largely rejected by the leadership there, because the incentives it gave for investment and for hard and careful work, which agriculture requires, were not sufficiently strong. Even when production from a common plot is divided in proportion to labor inputs, this is seldom satisfactory because the quality of such inputs, which has a crucial bearing on output, cannot be taken adequately into account and rewarded.

In our discussion we are therefore considering households as the operative production units. Agriculture, as we know, entails considerable risk -- from weather, pests, disease, fluctuating prices or labor supply. Cooperative or collective enterprise could offset such risks. But by and large, rural households prefer to keep their respective production activities separate and to deal with risk through other institutional mechanisms such as mutual aid, labor exchange, joining credit or marketing cooperatives, or working with state agencies.

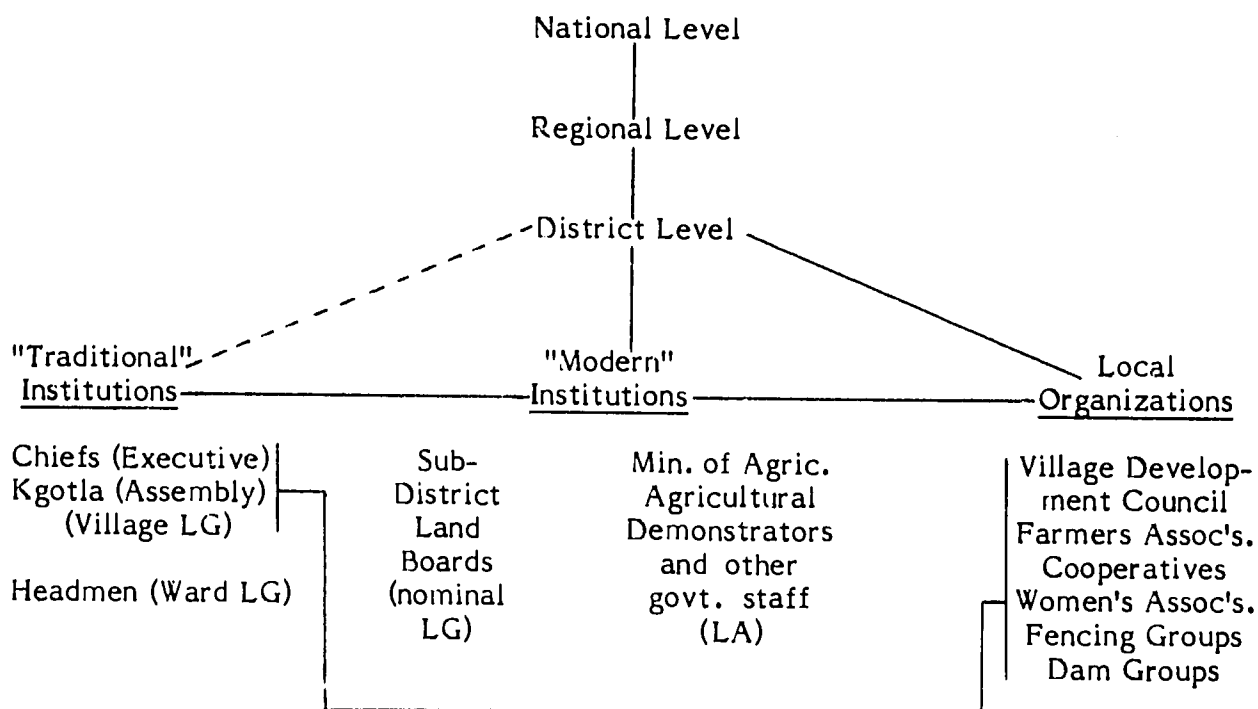
Among the supporting institutions for agriculture dealing with inputs and outputs, there are multiple possibilities:

- (1) local administration (LA), field staff of government agencies such as the Ministry of Agriculture, rural credit programs, parastatal corporations, etc.;
- (2) local government (LG), possibly having some functions that deal with agriculture, as discussed below;
- (3) membership organizations (MOs), made up of producers who hire machinery, take out insurance, lobby government for more services and better prices, or undertake other collective actions;
- (4) cooperatives, a special kind of membership organization where producers pool resources and share some risk (such as price fluctuations in a marketing cooperative) in order to improve their economic and social position;
- (5) service organizations (SOs), providing goods and services on a charitable or non-profit basis; and
- (6) private businesses, selling goods and services to producers or buying commodities from them for profit.

Alongside such "modern" institutions there can be "traditional" ones which may have a role in agriculture. Elaborate crop rotation schemes are managed by traditional local authorities in some communities of Peru and Bolivia, for example, where they still determine what crops will be planted, the work schedule for farm cycles, and the length of cropping and fallow periods (Brush, 1983). Whether such decision-making roles are to be considered as a form of local administration or local government depends on whether the persons in those roles are more accountable to government authorities or to members of the community. The role of village headman (iurah) in Indonesia functions as an arm of local administration, for example, whereas the traditional authorities in Peru and Bolivia function more as local government. There are many kinds of

indigenous cooperatives -- Seibel and Massing (1974) document 16 different kinds of rotating savings and credit associations in Liberia alone -- and of course there are innumerable "traditional" businesses dealing with agriculture, often in the roles of traders or middlemen (Bennett, 1983).

In thinking about local institutional development for agriculture, all of these channels for moving resources and information upwards, downwards and horizontally should all be considered. We are focusing here on the more "modern" institutions, since they are more amenable to support and strengthening from outside the locality. But cooperative relations among the various local institutions, "traditional" and "modern," should enhance both local and outside efforts to improve agriculture. The kind of network of local institutions which can exist has been diagrammed in the case of rural Botswana by Willett (1981).^{5/}



^{5/} On this complex of institutions, roles and organizations, see also Brown et al. (1982) and Kloppenburg (1983). There are a number of service organizations at the local level such as Red Cross Societies and Social Service Committees but they are not involved in agricultural work.

Each country's configuration of local institutions will be different, of course. In Botswana, the "modern" local government (LG) institution is the District Council, which is not really a "local" institution because it is at too high a level. Also, there is very little private activity connected with the provision of inputs and outputs because of low levels of production and commercialization, so government agencies cover these functions. This will probably change over time, though in semi-arid environments like most of those in Botswana, it will be a while before the level of income and sales will support much of a network of private suppliers and buyers. Elsewhere one would find private commercial organizations to be more important, and we consider them below as one of the major local institutional channels for aiding agricultural development.

We would emphasize that none of these channels is suggested as an exclusive option. Our review of literature for this study has confirmed our earlier conclusion based on an analysis of Asian experience, that agricultural development proceeds better when there are multiple channels that link rural communities to regional and national centers of trade, technical assistance and policy (Uphoff and Esman, 1974). Private businesses, like government agencies, are an important kind of channel but not the only one to be developed. As a rule, whether their relations are cooperative or competitive, different kinds of local institutions function better when operating in association with other kinds, as part of a network of agricultural support institutions.

2.1 LOCAL ADMINISTRATION

Any efforts to encourage or accelerate agricultural development will have some prominent role for the staff of various government agencies working at the local level. This does not mean however that they can or should try to "administer" such development. It is one thing to administer agricultural credit or manage crop purchase schemes, where there can be reasonable control over the factors involved. But agriculture itself is in the hands of thousands, even millions of producers and subject to so many fluctuations of weather, disease, market prices, etc., that it remains beyond the reach of "bureaucratic" or "technocratic" approaches to development.⁶ Local

^{6/} This problem was aptly phrased in an editorial in the Economic Weekly of Bombay when it said: "The clue to the failure of rural development (in India) lies in this, that it cannot be administered, it must be organized." (Cited in Huntington, 1968:395.)

personnel of the central or state government are essentially involved in providing technical, economic or organizational support to producers, not engaging in agriculture as such. The question is how can local administration (LA) best make a contribution as part of a system of local institutions furthering agriculture.

The most common role of LA is to provide advice and demonstration of new technologies to raise production. To be useful and accepted, these must be truly appropriate and productive. If the most innovative agricultural research and experimentation is being done under government auspices, LA is usually in the best position to disseminate this. Especially if a technology is not "embodied" in a tangible form which permits private distributors to make a profit selling it, e.g., raising fish in rice paddies, LA is the most appropriate channel. To the extent that the advantages of an innovation are insufficiently known to make it commercially viable, LA may need to play a role in popularizing it. The best LA role may be to pave the way for private businesses to handle the task rather than maintain responsibility for dissemination, as seen in the case of fertilizer distribution for high-yielding varieties in Pakistan (Falcon and Papanek, 1971:4-5).

In assessing when LA has an advantage for disseminating new technology, one should bear in mind that government staff are not the only, or always the best, means of dissemination. There is a great deal of "horizontal" diffusion of technology among farmers whenever something truly beneficial is introduced. This can be done on an individual basis or through organizations, such as the seed-exchange societies formed among farmers in rural Japan during the early years of that country's agricultural modernization (Aqua, 1983). Private suppliers of technology are often some of the most active purveyors of new techniques or products, and there are non-institutionalized channels of communication such as through local shops or tea-stalls.^{7/}

When the inputs needed for improved production are scarce and some rationing system is desirable to spread them most fairly or productively, LA is more likely than private distributors to handle this properly, being more directly subject to state authority. Cooperatives or other membership organizations can be enlisted in this but

^{7/} Discussions with colleagues about diffusion of agricultural technology have produced examples where farmers stole and spread new varieties that they saw as particularly advantageous -- high-yielding wheat seeds from Punjab Agricultural University plots in India and a better variety of potato (Renacimiento) from experimenters' fields in Peru (personal communications from Mohinder S. Mudahar and William F. Whyte). So the role of institutions in technology diffusion should not be exaggerated. On this, see Nicholson (1984), but also Goodell (1984).

whether or not they will be less corruptible depends on their traditions and on the degree of local stratification. Any time there are shortages, any local institution is liable to distorting influences.

If use of inputs such as seed or fertilizer is thought to be productive and to benefit not just producers but also the public at large, arguments can be made to subsidize them. LA will probably be the channel of choice for such purposes as well, though subsidized distribution can be handled through private agencies or through MOs and cooperatives, with the same caveats applying as mentioned above. Subsidies create incentives for corrupt practices to which no form of local institution can be assuredly immune. In deciding among channels, their respective histories should be considered to see which is most disposed by precedent to retain reasonable standards of conduct. If there is a substantial subsidy, as with a substantial shortage, one must expect new "precedents" to emerge.

Extension advice as a service rather than a good is less visibly liable to corruption, but its distribution can be similarly unequal.^{8/} Extension can be provided through private channels, as seen with commercial crops like cotton and tobacco. But most extension work is done through agents who are part of the local administration (LA) cadre.

The problems of getting good extension advice to farmers through local administration channels are many, quite apart from how it would get distributed among farmers.^{9/} (1) Extension workers often receive little useful information from their agency to transmit or there is little information available that could improve the farming system. (2) They are posted in the hinterland and are often isolated and ignored, thereby becoming demoralized. (3) They tend to avoid taking responsibility because they are outside the decision-making process, and initiative is not encouraged or rewarded. (4) They are often burdened with many tasks besides agricultural extension work, and they have many bureaucratic duties to fulfill.^{10/} (5) They work in an atmosphere of uncertainty, not knowing how long they will be posted in that area.

^{8/} The extent of unequal distribution is seldom documented, but Leonard (1977) has calculated, based on detailed field studies, that a "progressive" farmer in Western Kenya was 42 times more likely to get an extension visit during the year than was a "traditional" farmer.

^{9/} These are common observations about extension services in LDCs, but Leonard (1977) gives documentation on these points.

^{10/} See data from Chambers (1974) and Reddy (1982), cited in footnote 22 of Report No. 1 on this point. Reducing such bureaucratic demands would be an important contribution to LID for the extension service in most countries.

(6) The conditions of work are often difficult and the facilities for transportation and communication inadequate.

There is almost always considerable scope for improvement in the LA performance of extension work, so judgments about extensions utility should not be made in terms of present levels of performance so much as in terms of what could reasonably be achieved with some reforms and reorientation. For example, Roling and Jiggins (1982) suggest that the effectiveness of extension agents could be improved by not having them play "regulatory" as well as "advisory" roles. If they are monitoring and enforcing soil conservation measures, for example, farmers are less likely to listen to them on improving production practices (Temple, 1972).

One approach which has sought to increase LA effectiveness has been the "training and visit" (T&V) system supported by the World Bank (Benor and Harrison, 1977; Cernea et al., 1983). It seeks to ensure and standardize the performance of extension cadre through fortnightly training sessions. Simple set messages are given to the extension agents to take to a series of "contact farmers," whom they meet regularly and who in turn are to carry the messages to other farmers. This methodology, when it works, is most effective when there is: (a) a productive technology readily diffusible, (b) a degree of supervision over farmers' production, (c) a uniform pattern of farming, preferably monocrop, and (d) relative homogeneity among farmers (Howell, 1982). These conditions are unlikely to apply in very many areas.

One of the limitations of the T&V approach has been a shortcoming in terms of LID. Even when messages get to the contact farmers, they do not get much further.^{11/} Contact farmers have usually been chosen by the extension agent or elected only perfunctorily by a set of farmers, who are not a real group with "members" feeling some sense of solidarity and mutual responsibility. Thus the transmission of messages commonly breaks down at this lowest but crucial level for lack of a local organizational underpinning to LA activities. The T&V approach is so focused on messages and meetings that it has seldom tackled the local institutional development requirements

^{11/} A study of T&V in Thailand found that so much of the program's effort was concentrated on getting messages "out" (or "down") that there was little attention paid to the information which farmers could (and in principle should) contribute to a two-way flow which reached back up to the researchers and planners (Compton, 1982). A study analyzing the working of T&V in a major project in Sri Lanka, concluded that the percentage of farmers in regular contact with the contact farmers was not sufficient to make the program effective (Gunawardana and Chandrasiri, 1981). More optimistic assessments of T&V are offered in Cernea et al. (1983).

for an effective linkage to the farming community. These include building legitimacy for the channel as well as the activity so that both become "institutionalized."

The orientation of the LA organization and staff is important when trying to judge its potential for work with farmers. As a rule one can say that LA works more frequently and congenially with more advantaged farmers. Indeed, Tendler (1982) has suggested that Departments of Agriculture and rural banks derive bureaucratic power from their ability to provide subsidized inputs to local elites, so they are likely to resist reorientation of their services toward less privileged groups. On the other hand, in some cases such as reported in Botswana by Willett (1981), one finds some extension agents working quite actively on behalf of small farmers and women. In the majority of cases it appears that some amount of "bureaucratic reorientation" will be needed if LA staff are to become productively engaged with typical farmers in need of technical assistance (Korten and Uphoff, 1981).

We will discuss the functions of marketing and processing more below when considering the role of cooperatives and private businesses. We note here that among support activities, marketing and processing appear not particularly suited to government agencies. Maintaining price stability is about the only thing they can accomplish. Seldom do such agencies act as an intermediary between farmers and the commercial or export market in ways that increase farmers' production and benefits. Only the monopoly power of government buying and processing agencies keeps them from looking as uneconomic as they actually are (Bates, 1982). In Jamaica it appears that state marketing corporations, discussed in the Annex (pages 64-65), contributed to a decline in output of certain crops rather than to an intended increase.

There is no question that the technical and policy requirements of agricultural development will make for a substantial LA role in every country. But this needs to be evolved in conjunction with other institutional channels. One of the considerations in weighing LID alternatives is the fact that once the government undertakes a responsibility, it often pre-empts other channels, private or voluntary, from getting into that area. (The Pakistan case cited above was an exception.) A decision to use LA staff and to build up LA capabilities is not an independent choice. It has implications for what other local institutions can and will do. Accordingly, the challenge is to work out a network of alternative channels which make each other more effective in their respective tasks.

2.2 LOCAL GOVERNMENTS

That local governments generally play a minor role in agricultural development was one of the unexpected findings of our study. This conclusion is difficult to quantify, but we found few instances where LG institutions had substantial direct responsibility in the area of agriculture. For example, although the legislation which established panchayats in India in 1957 envisioned an active role in agriculture for these local government bodies, this has not materialized (Nicholson, 1973). The reasons for this are worth considering. From the vantage point of a local government, the technical requirements for agricultural improvement may appear to be beyond LG competence, and LA may encourage such a perception to keep control over decision-making about agriculture. This is apparent in India, where the bureaucracy has kept a tight hold on agricultural functions (Haragopal, 1980; Reddy, 1982). Still, this does not seem a sufficient explanation because the panchayats could have played a larger role if their leadership had been more assertive.^{12/}

A more theoretically interesting reason appears to lie in the fact that agricultural production is mostly private and its benefits are private rather than public goods.^{13/} Even though the village panchayats are notoriously dominated by larger and more prosperous farmers, who could use their authority to promote agricultural innovations of special interest to themselves, LGs appear to prefer undertaking activities of a "public goods" nature like roads or water supply that are ostensibly more broadly beneficial and thus less controversial. Richer farmers can more legitimately pursue their agricultural interests through membership organizations like cooperatives, as is

^{12/} One detailed study of Indian local administration and politics found that areas of higher productivity and agricultural growth had more political pressures for performance, coming mostly from the panchayat system (Bjorkman, 1979:219). Even then, the panchayats tended to be more involved in lobbying and planning efforts than in service provision for agriculture.

^{13/} "Public goods" were discussed in Section 4.0 of Report No. 3. That local governments may feel constrained to provide "public goods" was proposed by Nicholson (1973).

regularly done.^{14/} As local government bodies are established to benefit all the persons within their jurisdiction, those activities which are of use to any and all members of the community will maintain or enhance LG legitimacy. A health clinic or a school is a more appropriate undertaking for a local government, according to this reasoning, than an irrigation channel or a fertilizer program.^{15/}

A separate explanation based on bureaucratic considerations would point out that local governments come under the jurisdiction (or direction) of some other ministry than the Ministry of Agriculture. A Ministry of Interior, Local Administration or Home Affairs might steer local governments away from agriculture because of concerns about "turf." Conversely, a Ministry of Agriculture might not like to have its staff assist in local government programs. Where such problems of territoriality exist, they would need to be overcome for LID efforts to succeed in strengthening local government capacity for work directly on agricultural development.

If local governments provide infrastructure, as discussed in Report No. 3, or have an active role in forest or rangeland management as suggested in Report No. 2, these are valuable indirect contributions to agricultural development, but the question then becomes, what other local institutions will play primary roles? While we conclude that in general the direct role of local government in agricultural development is limited, we found some cases where LG institutions made substantial contributions to agriculture. Usually these were institutions "descended" from traditional local government roles, such as those mentioned above in Bolivia and Peru and documented by Isbell (1978). A common factor in these instances is that practically the whole community was engaged

^{14/} A detailed demonstration of such control is found in Blue and Junghare (1975) in their study of agricultural yields associated with farmers' access to fertilizer through cooperatives in India. Some farmers getting no fertilizer from the co-op had very good production while others received large amounts of fertilizer but did not have commensurate output. Closer examination showed the first group to be purchasing fertilizer on the black market, being willing and able to pay a higher price for good quality fertilizer that arrived on time. The latter group were officials of the co-op who were taking as much as they could get to distribute as payoff to members who supported their election and who constituted a third group of farmers, who had better yields than predicted by their official receipt of fertilizer. A fourth group, farmers outside the political network that controlled the co-op, lost out and got no fertilizer.

^{15/} Ralston et al. (1983:36-38) cite a number of studies from Peru, Kenya, Tanzania, Zambia, Zimbabwe and elsewhere, where community self-help groups as well as local governments engage in activities to build schools, dispensaries, water supply, etc. but not to promote agriculture (e.g. Bratton, 1980). They attribute this pattern to low rural demand for agricultural improvement rather than to the kind of "public choice" explanation suggested here.

in agricultural activity, and landholdings are relatively equal so almost all members of the community have a similar stake in increasing or guaranteeing production. Management of irrigation systems in Pakistan and Indonesia through local community institutions fits both of these conditions (Bhatty, 1979; Coward, 1983). Such conditions -- links of local government to traditional roles, and little economic differentiation of the population -- are not likely to be found very widely, however.

That local government with vigorous and agriculturally-oriented leadership can play a key role in promoting agricultural development is seen in a historical study of such development in Northern Nigeria. Those areas which carried out policies supportive of agriculture through what were then called the Native Authorities (headed by chiefs with elected councillors) achieved comparative success in agricultural development without much infusion of government funds (Tiffen, 1980). The case of the Gombe Emirate is particularly instructive and is reported in the Annex (pages 70-71). Obviously, where local governments are willing and able (with sufficient taxing powers and personnel) to play a larger role in agriculture, this deserves support.

2.3 MEMBERSHIP ORGANIZATIONS

Voluntary associations can perform a wide variety of functions to facilitate agricultural development (Oxby, 1983). Here we are distinguishing such organizations from cooperatives, discussed next, which are a special and important kind of local organization which involves a pooling of resources and risks. What we are terming membership organizations (MOs) operate like limited-liability companies, but not to make a profit. Rather they are formed to serve members who hope to have more profit themselves from getting better, cheaper or more reliable goods and services. These are inputs to production or they enhance the value of outputs.

No pooling of resources is involved in MOs as with cooperatives, though the distinction fades if an organization pools purchasing power to pay lower bulk prices for fertilizer or bargains for a better price when selling the group's commodities. Together MOs and co-ops constitute an "intermediary sector" between what are known as the "public" and the "private" sectors (Esman and Uphoff, 1984:18-22).

Probably the most well-known and widely-acclaimed membership organizations serving agriculture are the Farmers' Associations in Taiwan which have contributed substantially to the advancement of productivity there. The Associations provide

farmer-members with extension advice, production inputs, credit, processing, marketing and other services. Such comprehensive organizations, of course, represent the culmination of a sustained program of developing local institutions (see Annex, pages 77-78). They cannot simply be "built" like an irrigation or road system.^{16/}

It may be easier to develop multi-functional organizations in more-favored environments like Taiwan. With good water supply, the predictability of tasks and outputs and the level of resources generated facilitates such an evolution. In less-favored environments where soil or rainfall are less ample, such as Botswana, one is more likely to find more specialized, single-function organizations. Indeed, the vitality of self-help efforts in Botswana has encouraged the government there to embark on a Group Development program (Kloppenburg, 1983). Some Farmers Associations and Farmers Committees in Botswana are in principle multi-purpose but usually they concentrate on a few needed functions. Single-purpose groups are legion; they manage small catchment dams for agricultural and livestock production; they sink and operate wells for irrigating gardens; they rent or purchase tractors for plowing; they construct stock dipping tanks to control cattle ticks; to protect planted fields against cattle damage, they build fences more than 100 miles long; they start up poultry or horticultural production (these are mostly women's groups), and so forth.^{17/}

What these membership organizations have in common is that they all enhance or protect the private production of their members. Some goods or services may be sold to non-members, such as water from a livestock dam or tick-dipping services. This contributes to MO revenue or, in the latter example, to MO effectiveness since ticks spread unless all herders control them. These groups also evolve and change functions as new opportunities are recognized, adding activities or splitting off new organizations to meet these needs.^{18/}

^{16/} The Japanese colonial administration which governed Taiwan before World War II had already started farmer associations decades earlier.

^{17/} The structure and performance of these various kinds of associations as well as of parallel "traditional" institutions are analyzed in Willett (1981) and Brown (1983). The drift fence groups are described in the Annex, page 67 as representative of such local initiative in Botswana. The dam groups have been analyzed in detail in Roe and Fortmann (1982) and are included in the Annex to Report No. 2.

^{18/} The dynamism of such self-help groups, called *mwethya* in the Machakos district of Kenya, is documented by Tiffen (1983) with the example of a mutual aid society among women engaged in agriculture. This MO used its agricultural earnings to buy sewing machines for its members, becoming an informal cooperative to make money sewing school uniforms. The profits from this were devoted to establishing a nursery school, so the MO ended up as a service organization (SO) with an agricultural base.

The functions of local organizations in agriculture can go beyond self-help measures to engage in tasks of technological modernization where they are taken into account by scientists and administrators (Goodell, 1984). It is not yet common for MOs to hire their own extension staff, but the example of the Taiwanese Farmers Associations has encouraged planners to see this as a possibility for other organizations. The Malaysian government sought to introduce the Taiwanese model of organization in the 1970s but without much success, because the roles and tasks were being transferred wholesale, without modification or experimentation.

If technical staff are hired and directed by farmers associations, such extension agents can be held accountable to their clientele so that knowledge is put at members' disposal with adaptation of advice to field conditions and energetic follow-up. Another function can be lobbying with representatives of the national government to get more and better services for agriculture or holding local government officials accountable to their constituencies. In the Northern Nigerian case referred to above, through the efforts of the Native Authority (LG) and of rural interest groups, villages have been able to secure a greater share of development services.^{19/} In Nepal where farmer groups have been organized under the Small Farmer Development Program, these groups have been able to curb the local power structure by taking control of the local government as reported in the Annex (pages 76-77).

Perhaps the greatest strength of MOs is their flexibility, which facilitates their identifying needs and mobilizing efforts to meet them. MOs can retract as readily as they rise, or change their form as the mwethya example from Kenya indicates. Such flexibility also means, however, that such groups are not easily institutionalized. Whether these groups become fully institutionalized is less important than the extent to which they can facilitate resource mobilization and two-way communication in their various incarnations. It is more likely that cooperatives which we discuss next will become institutions, as defined in Report No. 1, because their members' economic stakes and jointly-owned assets give very tangible reasons for supporting their continuation.

^{19/} "Gombe NA has always vigorously defended expenditure on the villages, protesting strongly in 1950 when its projects for rural development were excised from the plan. In 1967, Rural Development was the only section of the 1962-68 Plan in which expenditure targets had actually been exceeded (less than 50 percent of the remainder of Plan projects had been completed). There is a contrast here with Bornu, a centralized emirate, where over (half of its) Development Plan for 1962-68 was allocated to Public Buildings and Urban Development, both mainly for the capital" (Tiffen, 1980:31).

2.4 COOPERATIVES

There are many kinds of cooperatives associated with agricultural improvement. As indicated already, we are not including here the category of producer cooperatives which represent a unit of production parallel to the household, corporation or state enterprise. The resources which members can pool in cooperatives for economic gain are (1) money, (2) labor, (3) purchasing power, and (4) products. These are associated with the following kinds of cooperatives:

- (1) Credit Unions or Savings and Loan Associations. They pay interest on members' savings and provide loans to members. These are not exclusively involved in agriculture but are important for agriculture where banking institutions are not available and moneylenders are extractive.
- (2) Labor Cooperatives. These are not common as formal cooperatives, but informal ones are fairly common in less commercialized settings such as in Liberia (Seibel and Massing, 1974) or in the Latin American Andes as discussed already.
- (3) Consumer Cooperatives or buying clubs. These can lower prices by group purchasing of commodities or services. When the goods or services are directly used in agricultural production, this kind of cooperatives may be classified separately, as:
- (4) Input Supply Cooperatives. The purpose of these co-ops is to get better prices or quality for agricultural inputs. These are important worldwide for agricultural producers.
- (5) Marketing Cooperatives. These try to get more favorable prices for members by grading, processing and/or transporting products in common, or by storing and selling when the price is most advantageous. They are found frequently around the world, giving incentives to members to use new technology and increase production because of more favorable returns to labor.

The latter two are the most common kinds of co-ops for agricultural development. Cooperatives can vary considerably in form. The following distinctions can apply to other kinds of local organizations, but are particularly relevant for cooperatives:

- (1) Functions. Co-ops can range from single-function, covering just one of the resources noted above, to multiple-function, dealing with several of them. Multi-Purpose Cooperative Societies are fairly common in India and Sri Lanka, handling credit, agricultural inputs and marketing, as well as consumer goods in some cases.

- (2) Structure. Co-ops can be simple organizations, operating independently, or they can be federated into larger, more complex organizations linking base-level primary societies into two, three, four or more tiers of organization.
- (3) Objectives. Co-ops can be purely economic, with the material advantage of their members as the only goal, or they can have broader socio-political goals as well, viewing the co-op as a means for achieving social change and even wielding political influence.^{20/}
- (4) Membership. Co-ops can be exclusive, restricting membership (e.g. permitting only small farmers to join) or they can be inclusive, allowing anybody who contributes their membership share (of money, labor or material goods) to become a member.
- (5) Initiative. Co-ops can be started by their members alone, or at government or PVO instigation. Those in the former category have generally been more successful but no strict delineation is possible because a co-op started by its members may become coopted by the government through economic or legal strings; conversely, one set up by government may become quite independently run by its members.

Almost all of these combinations can occur. For example, a marketing cooperative may have been started by its members or at government initiative; it may move on to perform other functions or may stick with that one task; it may have just economic goals or not; its membership may be exclusive or open to anyone.

The most important difference which we observe in cooperatives grows out of these variables:

- (6) Accountability. To whom is the cooperative accountable? Are its decisions made mostly in the interests of its members, or are they shaped in response to government objectives and policies? Do officers look mostly "downward" to members or "upward" to officials? Do members see the cooperative as belonging to themselves or to the government?

Even the latter position, however, acknowledges that the economic purpose is present.

There can be organizations called cooperatives where:

- * the functions are not ones which members understand and appreciate,
- * the structure is complex and lower levels of organization are controlled by personnel at higher levels (rather than vice versa),

^{20/} If there are no economic objectives, it would not be a cooperative. Dobrin in his study of Kenyan cooperatives notes two contending views, that cooperatives are "essentially economic tools," i.e., business organizations, or "essentially social organizations which serve a need more basic than an economic one" (1970:108-109).

- * the objectives are broader or narrower than members want,
- * membership is so open that there is no sense of mutual responsibility (the co-op is in effect a public utility), and
- * the organization was not the members' idea in the first place,

Such organizations, if they continue to operate, are essentially public sector organizations (LA) rather than cooperatives. When one surveys co-ops in developing countries, one finds a substantial proportion being "cooperatives" in name only. Others operate only partially along cooperative lines, constrained and distorted by standardized models of organization and by government controls.

If cooperatives always operated as they are intended to work, they would be ideal contributors to agricultural development. Unfortunately, actual experience is quite mixed. King says of the cooperatives which he studied in Northern Nigeria:

The institution created in the villages was insubstantial and dependent on government patronage. If credit or the rewards of leadership were removed, it would collapse immediately. The sophisticated organization described in the rule books would not provide a framework for the rural population to mobilize their own resources and undertake activities immediately useful to them. Rather, the existence of the sophisticated legally registered cooperative, dependent on government credit and authoritarian leadership, inhibited the formation of small simple self-sufficient groups which could be responsive to local needs and might form the basis of genuine village institutional development. (King, 1983:278)

A review of World Bank project experience suggests that co-ops have a high "mortality rate" after 3 to 8 years, when their initial momentum has passed and the complexities of accounting and management are confronted (Cernea, 1981). There are, however, some impressive cooperatives that have survived many years and contributed both to increased production and members' welfare. Examples would be the AMUL dairy cooperative in India (Korten, 1980; Paul, 1982:15-36), the Sukuma cotton growers' cooperative in Tanzania (Lang et al., 1969) and the Portland-Blue Mountain Coffee Cooperative Society in Jamaica (Gow et al., 1979). A recent study of a number of Bolivian cooperatives found much more basis for approval than the author had expected (Tendler, 1983).

It has been suggested that co-ops do better if they limit themselves to a single function (Tendler, 1976), but this may be a matter of phasing. Our analysis (Esman and Uphoff, 1984) found on the basis of quantitative case study analysis that, other things

being equal, multiple functions are associated with greater average success in all of them. This does not mean, however, that co-ops or other local organizations should start with multiple tasks. Rather they do better to start with one or a few activities, moving to take on more only when their members feel a definite need for this and feel capable of managing them.

Cooperatives often experience difficulties in competing with private marketing or supply companies because of their financial structure (Turtianen and Von Pischke, 1982). Whereas private firms have a clear incentive to re-invest earnings to build up capital and become technologically more advanced, co-op members may prefer to distribute profits, because they perceive little advantage from the accumulated book value of assets. Also, cooperatives must maintain satisfactory relations with many different sets of actors: their members, the government, their employees, their customers (where non-members also do business with them). If any of these become dissatisfied, the organization can be undermined.

One problem faced almost universally, though not always succumbed to, is corruption. Few things are more deadly for a co-op than this, since loss of members' confidence and support will kill it quickly. We do not want to exonerate those responsible for corruption, but it is often partly a consequence of the way the co-ops have been set up. Fieldwork on coffee cooperatives in the Bukusu area of Western Kenya concluded that the observably pervasive corruption could be traced to the way they had been set up by colonial authorities (Hamer, 1982). A foreign structure was imposed on a society which was only newly acquainted with cash, let alone formal-legal organizations. There was no attempt to incorporate traditional roles or sanctions. The externally imposed system was incomprehensible to local co-op workers who had limited numerical and writing skills. The requirement of frequent meetings was seen as a waste of time. So a series of informal procedures grew up which allowed substantial abuses of co-op resources.^{21/}

^{21/} The lack of controls was not due to the absence of government regulations (there were plenty of those) but community sanctions which would have been more effective were not utilized. Hamer concluded, based on previous fieldwork in rural Ethiopia where indigenously-based organizations do control corruption (see Hamer, 1976), that more decentralized decision-making and sanctioning procedures, by involving members effectively in oversight of cooperatives, could have controlled abuses.

As damaging as corruption by co-op officers and staff may be the domination of cooperatives by government officials.^{22/} When co-ops are effectively under the control of officials, for all practical purposes they should be considered as LA and not as local organizations. If administered honestly and efficiently, they may make a contribution to agricultural development without membership participation in their management. The AMUL dairy cooperative in India, referred to above, comes close to such a situation. Its size is such that its base-level societies cannot do more than approve the plans of the managers. This organization is unusual, however, in the extent to which its management has remained reasonably honest and hard-working.

Size presents a dilemma for cooperatives, in that control over officers and staff is easier to maintain in small organizations (Doherty and Jodha, 1979; Bennett, 1983:38-40). But co-ops can produce more economic benefits for members by economies of scale in purchasing inputs or in processing and selling produce which are made possible by larger organizations. Maintaining high standards of conduct within cooperatives generally requires active oversight by members. Unfortunately, such efforts are easiest to elicit when a co-op is not being well-run. When it is operating successfully, there are few incentives for members to invest time in overseeing management, and an abundance of funds may itself increase temptations. This problem is often dealt with in Latin American co-ops by members' appointing "vigilance" committees to review and report on financial affairs.

Cooperatives are usually reasonably careful when handling their own members' money. Financial problems arise most often when some substantial amount of money from the government is involved. This was seen most clearly in the case of the Comilla farmer's cooperatives in East Pakistan (now Bangladesh). These had been one of the most hopeful demonstrations of how small farmers could be enlisted in agricultural improvements (Millikan and Hapgood, 1967; Mosher, 1969; Owens and Shaw, 1972). Members deposited savings on a weekly basis and made loans to themselves as needed, with a high rate of repayment. The government sought to utilize these channels for a large-scale credit program to promote new agricultural technologies (see Annex, pages 74-75). With the large influx of government funds, however, not only record-keeping and management deteriorated, but the incentive to repay declined (Blair, 1978).

^{22/} This may include corruption by officials, as documented in rural Thailand (Thai Khadi Research Institute, 1980) and Northern Nigeria (King, 1975). King presents detailed diagrams showing how both credit and marketing activities of the cooperatives diverged from the way they were supposed to operate under the control of members.

This brings us to a consideration of what functions co-ops can best perform in support of agricultural development. Cooperative credit unions or savings and loan associations appear attractive as channels for getting capital into agriculture. Loans and repayments are usually handled more satisfactorily when members' funds are involved, as members hesitate to deprive each other of assets. But there are limits on how much co-ops can expand their loan services with only members' deposits to draw on. Outside resources can be channelled into such co-ops to increase the volume of their loans, but any large infusion of funds is likely to lead to the kind of experience just reported from Bangladesh. Whereas people are usually quite concerned to repay private loans, there is an expectation, often created by politicians, that "government" funds do not need to be repaid. Thus, using private banking channels, even if some subsidy must be paid to the banks to handle small-scale loans, seems preferable to using cooperative mechanisms for extending agricultural credit.

If one turns to private or public sector institutions for handling loans to small farmer or landless households, rather than giving credit on an individual basis, some form of group lending may be desirable, both to reduce administrative costs of processing the loan and to increase rates of repayment because the group is collectively liable. This approach underlies the Small Farmer Development Program of FAO in Nepal and the Plan Puebla farmer committees in Mexico (see Annex, pages 76-77 and 65-66). Some effort must go into getting such groups formed, and they may not themselves become institutions. But having such groups can become institutionalized, as they hook up with banks or government agencies which are institutions.

Cooperative institutions are generally somewhat more effective in providing other inputs besides credit. They must be able to operate in a business-like manner, however, or they will not survive, especially if having to compete with private enterprises. If input supplies are scarce, as noted already, co-ops handling them may be tempted to engage in illicit practices. If given a monopoly over inputs, there are similar temptations.^{23/} On the other hand, if private dealers have a monopoly, their performance may be improved and their price manipulations checked by having competition from co-ops. Here again we see the need to think in terms of combinations of local institutions rather than of alternative channels.

^{23/} One of the clearest examples of cooperatives producing counter-developmental results occurred in Ghana in 1965-66. Knowing that the popularity of his government was slipping, Kwame Nkrumah gave the United Ghana Farmers Council, by then a wing of his ruling Convention People's Party, a monopoly over the subsidized distribution of machetes, hoping to boost support for the regime. Machetes, the

Probably the function where cooperatives can make the clearest contribution is in processing and marketing. This is suggested by the set of cooperatives cited above as some of the best examples of cooperative institutions. Marketing and processing may seem more difficult tasks technically than credit or input supplies, but they are easier to manage as accounting is quite simple and there is not the problem of collecting payments which can be such a source of financial losses in supply and credit co-ops (Tendler, 1983). Marketing co-ops allow producers to get the best possible return from their output, which gives both an incentive for increasing production and more income from which to invest in further improvement.

Another reason for marketing co-ops' success appears to be the commonality of interest between large and small producers, unless the larger farmers buy up the produce of smaller ones for processing and sale. In most situations, large producers gain by having small ones contribute their produce also to the cooperative. Having a larger volume makes processing more efficient, lowering unit cost, and it also improves the market position of the co-op when selling the produce. This is seen, for example, in the Bolivian co-ops and the cotton cooperatives in the Indian state of Gujerat discussed in the Annex pages (61-62 and 75-76).

The advantages of such processing and marketing operations are fairly obvious. Sometimes a government, wishing to make such operations more efficient by expanding their scale, and possibly with a view to gaining control over them, has given cooperatives the sole right to buy or process a crop like coffee or cocoa, which was disastrous in Ghana. Organizations nominally established as cooperatives may be set up to perform these functions, as occurred in Jamaica (see Annex pages 64-65). Co-ops as an institutional form are no less vulnerable than state bureaucracies or private firms to the distorting effects of monopoly, and their efficiency and their benefits to producers have usually suffered. This is to say that as one among several competing channels,

principal implement for cultivation in southern Ghana, were in short supply because imports had been cut in anticipation of opening a new factory to produce them in Ghana. But co-op officials, having a monopoly and operating more as petty government officials than as cooperative functionaries, held back the machetes supplied, selling them instead on the "black market" for many times the official price. This exacerbated the shortage of farm tools, reduced food supplies and raised food prices in the cities (the price of corn went up to more than three times the world market price; West Africa, February 19, 1966, p. 201). Moreover, it undermined still further Nkrumah's base of support. The UGFC is discussed in the Annex, page 68).

they have a lot to offer in agricultural development. But like other channels, they can only contribute to -- not by themselves accomplish -- local institutional development for agriculture.

2.5 SERVICE ORGANIZATIONS

In our literature review, we found local service organizations much more often engaged in activities like education or primary health care (see Report No. 4) than in agricultural development. Practically all of the SOs we came across were making useful contributions. Most were church-related organizations working at the locality level, dealing with very poor communities and justifying their efforts as works of charity.

One example was a Catholic organization working on small-scale irrigation and ox cultivation in Northern Ghana in the 1940s and 1950s. It was quite innovative in its time but was superceded by less effective government programs (Prosser, 1982). The Catholic-sponsored Kottar Social Service Society in Tamil Nadu, India, though involved mainly with primary health care, helped organize almost 10,000 small farmers (most of them having less than one-quarter of an acre) to install field channels for irrigating their land (Field, 1980; see Annex of Report No. 7). In Mexico, a secular organization, FORUSA, established by persons desiring to demonstrate a service orientation of private capital, has usefully assisted small farmers on a fee-for-service but not-for-profit basis (Whyte and Boynton, 1983:202-205). Other examples of service organizations and particularly religious organizations are cited by Ralston et al. (1983:47-49).

It is difficult to reach judgments about SOs when their number in the literature on agricultural development is so small. When there is sufficient motivation on the part of the providers to sustain a program, whether out of religious, ideological or personal values, and when adequate resources can be procured, SOs are almost ideal because of the flexibility they have, being bound neither by bureaucratic rules nor by profit considerations. Institutionalization of SOs, however, depends more on staff and donors than on beneficiaries. The latter are not "members" and have no control over the organization. Accordingly they have no obligations to it and need not support it in a way that would give it broad institutional foundations. To be sure, if staff and donors feel a strong enough stake in the organization's continuation, they can make it into an

"institution" through their own sustained efforts. Even so, at least some minimum acceptance and valuation within the community is needed for such a service organization to become institutionalized in some substantial way.

The role of service organizations may be more that of a catalytic than an operational agent for agriculture. Tandler (1983) found that three of the four cooperatives she studied in Bolivia had been started with Catholic Church leadership. The case of energetic cooperative development in the Dominican Republic documented by Sharp (1977) showed a crucial role from the local church. The strong peasant organizations in Honduras which have helped implement land reform and supported agricultural research activities (e.g., PNIA -- Whyte and Boynton, 1983:176-190) were launched decades earlier with church support. So one may look more for an indirect if not a direct role for many service organizations.

2.6 PRIVATE BUSINESS

The role of the private sector in agricultural development is hardly addressed in the literature in LID terms. What discussion there is deals mostly with comparative claims of efficiency in resource allocation. The institutional aspects of local private enterprises are seldom examined. Making judgments from the literature is made more difficult by the prevalence of stereotypes. The image of the money-grubbing village storekeeper who makes usurious loans and pays miserly prices for commodities clashes with that of the efficient, well-stocked service-oriented store which gives free agricultural extension advice to all who ask for it. There is little empirical basis for assessing how often either view has validity or for knowing what is the frequency of positive and negative performances by private entrepreneurs. Complicating these conflicting images are the competing interpretations of the role of multi-national corporations in developing countries. Some describe MNCs as serving to modernize production (e.g. Freeman, 1981) while others see them as exploiting farmers and thus leading to economic and social stagnation (Feder, 1978).

Our analysis leads to a similar conclusion for private businesses as for co-ops. They will not be adequate, equitable or even efficient if the only channel in rural areas for handling inputs and outputs. But they can make very valuable contributions in almost any situation as part of a system of local institutions mediating between

households and individuals, on one hand, and district, regional or higher institutions, on the other. The question is where are they especially suited or unsuited.

The first consideration is the potential for profit. Are the operations which support agricultural improvement, such as input supply or grain processing and storage, as attractive as other business opportunities for investment? In certain areas quite often there is insufficient commercializable activity to make a private enterprise pay. Where yields are poor and uncertain, with incomes accordingly low and variable, businesses are not likely to get involved in input or output services. Changes in the technological level of agricultural production are then more likely to come from the initiative of government (LA) or possibly from the community through collective self-help channels.

On the other hand, private entrepreneurs are generally more attuned to new opportunities than are government institutions. The stimulus of potential profit can induce persons to innovate and persevere where those "only doing their job" would not venture. So when it comes to getting new services started in unpromising locations, private entrepreneurs may be better than official personnel for supporting agricultural development. Any judgment about the comparative advantage of channels would have to compare just how entrepreneurial are the businessmen and bureaucrats respectively in a specific situation. Having some competition between private and public sector channels may itself be worth planning for.

On specific supporting activities, private channels have many advantages for the provision of credit and other inputs. They can be attracted to start and sustain businesses wherever profitable opportunities exist. If private producers cannot get a margin of benefit from use of the input which is greater than its cost, they will not continue procuring it from a supplier. This seems an elementary calculation of efficiency. The difficulty is that profitability is not always fully known in advance by producers or by suppliers, and the latter must be persuaded that there are potential profits before making the investment that will permit producers in turn to invest in higher production. To turn all decisions about credit and input supply over to private decision-makers can seriously constrain agricultural expansion, which is why most LDC governments have retained at least some role in this area.

The same logic which leads a government to subsidize the use of a new input can justify subsidies for its distribution. What may not appear profitable when used with little experience or on a small scale can indeed produce net benefits once better practices have been learned and economies of scale are realized. Whether or not

private vendors will be appropriate channels for such inputs depends on whether agreed price levels can be enforced when demand at the subsidized price begins to exceed supply. Private dealers are harder to regulate than government stores or cooperatives, though the latter also present problems in practice. Once a technology with characteristics of a private good^{24/} has proved profitable for all concerned, the case for handing distribution over to the private sector is strong, unless there is a scarcity situation prompting rationing. If there is reason to have competition, possibly distribution can be augmented by cooperative channels.

For the functions of processing and marketing, the case for a private sector role is quite strong because one is dealing with commodities that exist rather than trying to elicit ones that have not yet been produced. To be sure, the price paid to producers, which reflects efficiency as well as competition in processing and marketing, will have a definite incentive effect on production. For this reason, the case for cooperative institutions which rebate any profits to member-producers can be even stronger than for private enterprises if scale and efficiency conditions can be met by co-ops.

State agencies have a rather unsatisfactory record when it comes to buying and handling commodities. The temptations to give short weight and to undergrade produce are notoriously strong for poorly paid government staff.^{25/} Private buyers and sellers have the same incentive to pay as little as possible, but they can be bargained with, and usually sellers can find some alternative buyers. Studies of middlemen in the grain trade in India have shown them to be paying prices which cover real costs of operation and do not produce a profit in excess of other investment opportunities (Lele, 1971).

The basic strength of private businesses is the incentive for efficient and innovative use of resources which competition can encourage. The option of regulated private monopolies, often used in the area of public utilities, does not seem as feasible in the agricultural area as in infrastructure. Where responsiveness to changing conditions and risk-taking are important, private operations have an advantage over state-owned ones.

One function where the private sector has a clear advantage over other institutional channels is in the repair of agricultural machinery, and generally in its manufacture. There are few cooperative, let alone state, workshops that can compete

^{24/} On this characterization, which includes divisibility and excludability of benefits, see Section 4.0 of Report No. 3.

^{25/} A government may take over and operate a cooperative as if it were a state enterprise. This was the case in Ghana with the United Ghana Farmers Council under Nkrumah's regime 1957 to 1966 (see Beckman, 1976, and Annex, page 68).

with private ones. Ruddle and Rondinelli (1984:80) point out that quite different institutions operate at the community, locality and higher levels. In the villages, one finds small blacksmith shops where artisans produce simple tools and fix equipment, sometimes even tractors and trucks. More complex manufacture and most repairs can be done in enterprises at the locality level, with major production and the most complicated repairs left to companies at regional or national levels.

We began our discussion of private businesses as an institutional channel for supporting agricultural development with the observation which applies to the discussion of local institutions in general: no single kind is likely to be sufficient by itself. Our review of LID experience provided more grounds for our earlier conclusion, that promoting a system of organizations mediating between the individual or household and higher economic, administrative and political levels is more promising than establishing any particular single channel (Uphoff and Esman, 1974).

The complementarities are evident in agriculture as each of the kinds of local institutions surveyed has some advantages and disadvantages. For example, if private businesses perform certain agricultural support functions, this costs the government little or nothing compared to what it would pay to accomplish the task through local administration. On the other hand, businesses are set up to advance their own interests, not some general public interest which is the government's responsibility, so they may not be responsive to needs which the government has to serve. For some tasks, the least-costly method may also be least effective.

This consideration of alternatives has assessed the components of a local institutional network which could inform, encourage, assist and reward producers as they engage in the activities that raise food and fiber for themselves, their communities, the nation and possibly for export. We need to look also at the commodities, the conditions, and the producers involved to get a better idea of how differences in their characteristics affect what will be the most appropriate institutions and combinations for a given situation of agricultural development. But first we will consider the general subject of interdependence and dependence of producers which bears on their disposition to cooperate with each other in collective action and with higher level institutions.

3.0 THE INFLUENCE OF INTERDEPENDENCE AND DEPENDENCE

The central theme in consideration of commodities and conditions for agricultural development has been that the extent of dependence, or interdependence, of producers and institutions affects the possibilities for LID.

3.1 HORIZONTAL INTERDEPENDENCE

Producers may be interdependent in a number of ways, thereby creating incentives for cooperation in some kind of local institution -- public, private or membership. The following variables, with examples, can be identified:

- (1) topography: hill environments can require some cooperation to control water flow so as to reduce soil erosion and leaching of nutrients;
- (2) location: in irrigation systems, there is interdependence between "upstream" and "downstream" farmers; as failure to cooperate leads to the latter's crops suffering and to conflict;
- (3) plant protection: controlling pests by coordinating planting schedules, by fencing, or by bird scaring (uncoordinated bird scaring has little effect);
- (4) production activities: forming joint plowing teams, or planting paddy seedlings by work groups;^{26/}
- (5) marketing: timing harvests and sales to get better prices, by staggering sales to avoid a glut on the market, or by coordinating sales to get more favorable terms (through selling in bulk or hiring cheaper transportation);
- (6) processing: joint processing to achieve economies of scale and also quality control for better price returns;
- (7) varietal selection: coordinated choice of varieties to avoid deterioration of stock, to control pests, to improve robustness, or to spread risks;
- (8) complementarity: pastoralists and agriculturalists may benefit by coordinating livestock and crop activities, providing manure for crops from livestock grazing on residues so long as animals are prevented from damaging crops;

^{26/} Most examples of joint labor come from irrigated areas, but dryland agriculturalists can also be dependent on mutual cooperation. Getting land prepared for planting and actually planting it right after the first rains can make a big difference in yield. So group action may be quite important in rainfed agriculture, as Vincent (1971) shows in a rural community in Uganda. Such cooperation can be inegalitarian and even exploitative, however, as she documents.

- (9) credit: money lending for agricultural inputs or for emergencies;
- (10) seeds: some producers specializing in seed production (e.g., for potatoes or rice) and then exchanging seed for consumable or saleable produce;
- (11) competing uses of resources: reconciling different demands for water, soil or forest resources, which can create conflict but the need to work out some modus vivendi can give impetus for cooperation;
- (12) ecological stability: having to manage natural resources within stable limits to preserve them over time.

Any of these considerations can create horizontal interdependence among producers, though this does not mean they will necessarily organize themselves to handle the various problems effectively. The last two variables in particular create problems as well as needs for cooperation, as discussed in Report No. 2. Program designers should look at the number and kind of factors which would dispose agriculturalists to cooperate horizontally as an indication of the probable ease or difficulties with which greater participation in local institutions for agriculture could be promoted.

3.2 VERTICAL INTERDEPENDENCE AND DEPENDENCE

Given the differences in power which vertical relationships usually entail, one should not assume that there will be interdependence between producers and higher-level institutions, dependence and possible exploitation may be the result. Whether positive or negative vertical relations exist needs to be assessed separately from whether or not producers have reason to relate vertically to local or supra-local institutions. Factors which can contribute to vertical dependence of producers on institutions outside their community or locality are several:

- (1) inputs: need for credit, seeds (supply and certification), and other inputs like fertilizer and chemicals;
- (2) need for processing: important especially if the product needs quick and quality processing, as discussed below with regard to milk and tea;

- (3) need for marketing: important especially if crop is not consumed as food, e.g. tobacco or cotton;
- (4) need for transportation and/or storage: important especially if the commodity is perishable or especially vulnerable to pests.^{27/}

Where rural producers are dependent on higher-level institutions for assistance, this can create antagonism and withdrawal if the relationship is manipulated extractively from above. Just as one looks favorably upon interdependence among farmers at the group, community or locality levels, and disapproves of exploitative dependence such as arises from patron-client or indebtedness relationships, so is the relationship of interdependence between institutions at local and higher levels more desirable than dependence of the former on the latter.

Having terms of exchange which are mutually satisfactory should lead to more continued and productive activity on both sides, being reinforced by the contributions which each makes to the other's success. This requires local institutions which are capable of planning and implementing programs of activity on their own and which are able to "speak back" to a higher-level institution when its proposals are found to be technically unsound or economically disadvantageous.

Local institutions which have a strong base in horizontal interdependence should be able to contribute to a strengthening of vertical interdependence over time. By the same token, vertical assistance from higher-level to local institutions so that the latter can function more effectively should encourage producers to enter into more horizontal cooperation, which strengthens the capability of local institutions. These are general but somewhat abstract principles of LID strategy. They are made more concrete by considering the significance for LID choices of differences in commodity characteristics, in conditions of production, and in the characteristics of producers.

^{27/} We see in these latter examples the importance of the nature of the crop, discussed in the following section. In the case of potatoes, for example, there are many problems of spoilage and disease during storage, and also the problem of shrinkage. Andean peasants store their potatoes separately to reduce risks of loss due to pests or disease, but also because they would find it difficult to determine reduced shares by weight after potatoes have been stored collectively for some time and have shrunk.

4.0 IMPLICATIONS OF DIFFERENCES IN COMMODITIES

Producing different commodities presents agriculturalists not only with varying technical problems but also with varying local institutional requirements. The simplest example is to contrast growing field crops with raising large herds of cattle. In the first instance, the area locus of activity is fixed whereas with the second, it must vary unless the animals are stall-fed. At the extreme of transhumance, not only animals but whole human communities move hundreds, even thousands of miles a year. The jurisdiction of local governments in the first situation can be territorially demarcated, and other local institutions can be as sedentary as the people they serve. In the second, organizations must be adapted to migratory patterns. Authority relations, for example, being intimately associated with the people who give and receive commands, will be more personal than geographic. Local administration to be effective has to "follow the herds" or transfer responsibility among several LA units during each year.

The permutations of crops and cropping patterns are almost infinite, so our analysis can only indicate the kinds of LID implications to be looked for. The key concepts from organization theory which illuminate these relationships have just been discussed: dependence and interdependence, viewed both horizontally among persons operating at the same level, and vertically between institutions and persons at different levels.

Two of the most successful organizations-become-institutions which are currently raising the productivity and well-being of small farmer households are the AMUL dairy cooperative in India (cited in Section 2.4) and the Kenya Tea Development Authority (KTDA) (Steeves, 1975; Lamb and Mueller, 1982; Paul, 1982:51-62). The first is a cooperative in form and the other is a parastatal (local administration) with a network of farmer-grower committees (MOs) attached. Both exemplify how the nature of the commodity appears to influence the success, and possibly the structure, of the institution.

Although they represent different types of local institutions, their structures of organization are remarkably similar, as the KTDA committees operate in much the same manner as the AMUL primary societies. These base-level units collect the product (raw milk or fresh-picked tea leaves) from farmers twice daily and handle weighing, quality control and payment. They work with members on behalf of the higher-level parent organization to improve the quality and amount of production,

and also get involved in matters like road improvement because collection must be timely and regular.

The two activities, milk and tea production, have more in common than simply being beverages. In both instances, production is continuous, not seasonal as with many other crops. Cows go dry, and tea bushes may be plucked less often during the dry months, but this is quite different from crops that have planting and harvesting seasons and usually a long season when no cultivation is done. Thus the members are usually in daily contact with the organization through which they deliver and sell their product.

The product itself is dependent on processing. True, milk can be consumed, but it cannot be preserved in its fresh state. It needs to be refrigerated and pasteurized, or converted into a dairy product like cheese if it is to last. Tea leaves have no value unless processed and they lose their quality fairly quickly after plucking. Like milk they need to be taken to facilities for processing soon after gathering. This means that producers are dependent on some organization to ensure rapid transportation, as it is inefficient for them to take their produce individually to the factory.^{28/}

Third, both are commodities for which quality is very important. Spoiled milk becomes worthless, and poor tea is not desired, whereas good milk and fine tea are much sought after, and consumers will even pay premium prices for good quality products. An organization which can ensure quality generates a good margin of profit which can be shared with producers who cooperate.^{29/} Both AMUL and KTDA have devolved responsibility for controlling quality to the primary groups. If a group's lot is found to be spoiled by careless or deliberate action, all are penalized. If on the other hand, quality is maintained, all benefit because they get a good return for their labor. KTDA in fact has a very attractive bonus payment for quality (see Annex, pages 69-70).

An additional common feature of milk and tea is that each can be produced by relatively low-resource farmers each with only one cow or a few tea bushes, as well as by larger farmers. This relates to the socio-economic characteristics of producers (Section 6.3). Other commodities cannot be produced as satisfactorily on a small scale.

^{28/} A dairy cooperative in Uruguay found that it could save its members 1-5 hours a day by taking over the hauling and sale of milk (Hirschman, 1984:19, see Annex, page 66).

^{29/} There can be problems of adulteration with both milk and tea. Farmers may be tempted to add water or other fluids to milk to increase its volume. (Measuring butterfat content of very small amounts is impractical.) Teapluckers may similarly be tempted to bulk up their pickings by taking also the larger, older and less tasty leaves instead of just the bud leaves, or even to include sticks which add to the weight.

The AMUL "model" has been hailed for benefiting small and poor producers by paying a higher price for milk than did the local traders. Its processing facilities for making powdered milk, cheese and butter (when there was an excess of supply over demand for fresh milk) have enabled it to deal with the seasonal fluctuations of milk output and to share the benefits of this with members. That AMUL and KTDA could develop strong local organizations which promote efficient production, technological upgrading, and also a broad spread of benefits to small producers is in large part due to the structure and incentives which their planners created (see Annex on KTDA). But the nature of milk and tea as commodities should not be underestimated as factors. Not all dairy and tea operations are as efficient as AMUL and KTDA, but few other commodity operations have matched these multi-tiered institutions which reach down to (or up from) the local level.

Several of the cooperatives which might compare with AMUL or KTDA handle coffee or cocoa, also commodities which require processing and aggregation of produce to get the best price when selling it. There is not as much continuous contact, however, which creates attachment to the organization, and the processing and quality requirements are not as precise. Still these considerations are important. We have commented already on the Portland-Blue Mountain Coffee Cooperative Society in Jamaica, which has the advantage of producing some of the best coffee in the world which can command a premium export price. Marketing makes grower-members dependent on the organization but they are well rewarded financially for their cooperation.

The AMUL model has now been adopted by the National Dairy Development Board in India to promote milk production through the same kind of cooperative structure on a national scale with World Bank funding. Since AMUL has over 200,000 members, it is far beyond the "pilot project" stage. However, it took more than 20 years for the AMUL model of organization to develop and become institutionalized in its environment (Korten, 1980). New problems are likely to be encountered, requiring some organizational modifications, when extrapolating the model into different socio-political environments even for the same commodity.

More important from the viewpoint of commodity analysis, the Government of India and the World Bank, regarding the AMUL organizational model as a generalizable means to assist the poor and increase production, are setting up similar small farmer cooperatives elsewhere in India for producers of oil seeds. This program may eventually prove successful, but it has faced already certain problems that should have been

predicted from a comparison of contrasting commodity characteristics between milk and oil seeds. First, in terms of benefiting the poor, growers of oil seeds are less often among the very poor because crops cannot be grown without access to land, whereas cows can be raised and grazed by the landless on common property if necessary. Second, the buyers of oil seeds are much more powerful (known locally as "oil kings" -- telrajah) than were the village middlemen who bought and sold milk. As a perishable product, milk was less easily bought and held in large quantities, making it less profitable. The vested interests which the AMUL-type oilseed producer cooperatives must confront have more incentive and means to resist the organizational efforts of small producers.^{30/}

From the farmers' viewpoint, oil seeds do not need to be processed with as much urgency as milk or tea, so they do not create as much producer dependence on an organization. Moreover, compared to milk and tea, oil seed processing can be done by small mills and offers fewer economies of scale, which create benefits that can be remitted to producers who belong to the organization.^{31/} In milk and tea production, intense husbandry and attention to detail can pay real dividends, whereas such quality considerations are much less for oil seeds, where profit comes from scale of production and the quantity sold. One should therefore not expect the same kind of local institutional strength (or distribution of benefits) emerging from the oil seed cooperatives in India as was possible with dairy cooperatives.

Neither should one expect the KTDA model to work the same way with hybrid maize, for example, a crop which the Kenyan government would very much like to increase. With maize, there is no day-to-day activity that links farmers to the organization continuously, making it always salient to them. There will be long periods during the year when the organization would be irrelevant to maize producers. This is never the case for KTDA and AMUL members.

With maize (compared to tea or milk) there is no similar need for processing, and no comparable need for marketing since much of the maize produced is for home consumption or local sale. The functions of a supporting institution would tend to be

^{30/} This resistance has included violence, as reported in India Today, January 15, 1982.

^{31/} In the case of tea, the organization (KTDA) controls access to the world market for getting favorable export prices. Being able to export at a premium price is not important for oil seeds. AMUL has been able to get into the export business through its marketing strategy. There is some controversy over how beneficial this has been, but it has some advantages for institutionalization.

limited to selling hybrid seed and fertilizer at the beginning of the season, possibly selling insecticides or herbicides during the growing period, and then buying some of the product when harvested, doing nothing more until the rains come again the next year. Moreover, the quality considerations which give AMUL and KTDA more profitability to share with producers would be lacking with maize.

We see that use of more modern technologies and sale for the market make producers more dependent on higher-level institutions for manufactured inputs and favorable prices. This gives producers incentive to have their own institutions for horizontal cooperation and to deal vertically with state or private sector organizations. When producing for the market, there is often need to coordinate planting and harvesting schedules, either to sell in greater bulk or to avoid glutting the market and lowering prices. Cooperation in plant or animal protection measures becomes more important as more capital has been invested in the crops, trees or livestock. Thus, to the extent a commodity is commercialized, there is more basis for local institutions because of the new horizontal and vertical relationships which producers have. (An exception would be the kind of local institutions established to facilitate barter arrangements as in the case of Ayni Ruway in Bolivia (see Annex of Report No. 6).

This is all the more true where production is for export, because of the more stringent requirements for quality control and for timing of harvest and sale. We discussed in Section 2.4 the need for such institutions to operate in an efficient manner which serves the interests of producers. This often makes government institutions less viable than cooperative or private channels. One of our RDC studies found that the marketing organizations set up by the government in Jamaica to support and promote the production of bananas, as well as other export crops, had in fact a disincentive effect which reduced production (Goldsmith, 1982). The fact that bananas are a perishable commodity created requirements for a very responsive institution. Both producers and staff needed to meet high quality standards for export. In an agency purchasing a non-perishable staple like rice or wheat, the bureaucratic approach which the marketing organizations displayed would have been undesirable, but it would not have been so disastrous as with this commodity (see Annex, pages 64-65).

While products that involve a greater amount of capital investment and use more modern technologies make for greater dependence on higher level institutions, it is important to note that these products may also be more "exclusive." Some examples are cattle fattening operations, tree plantations that will not produce for several years,

cotton production which requires a high expenditure on pesticide, or irrigated rice in Latin America where only the wealthy can afford irrigation.

Small farmers who cannot afford such capital investments are usually excluded from local institutions tailored to the needs of these larger producers. In the case of certain Bolivian cooperatives, small cocoa producers could not benefit from the mechanization equipment available through their coop for its rice growing members. Cocoa production was being done in areas not suitable for mechanized rice production. Thus the small farmers were excluded from benefits (Tendler 1983). Here we see the characteristics of the commodity interacting with certain producer characteristics, discussed in Section 6.3.

We found practically no analysis in the literature on various institutional requirements or constraints which arise for certain commodity characteristics. We can thus only sketch with these examples the need to consider the implications of such characteristics for LID planning and implementation. Once the proposition is stated, it is obvious that institutional forms are unlikely to be equally effective in support of all kinds of commodities -- field crops or tree crops, large or small animals. The dependence or interdependence (horizontally and vertically) which producers of different commodities confront should receive more attention to determine the value which local institutions will have for producers in facilitating cooperation among themselves and linkages outside their group or community.

5.0 IMPLICATIONS OF DIFFERENCES IN CONDITIONS

Although our review of literature covered all kinds of agricultural development, we were particularly concerned with the problems likely to be encountered in less-favored areas where water presents a definite constraint for crop production. These areas are often referred to as "rainfed," though this designation can be misleading. All crops are rainfed, indirectly if not directly. The term is usually meant to distinguish between irrigated and non-irrigated agriculture. Yet, if rainfall is ample and reliable, it does not present a constraint on production and the area may not differ greatly from an irrigated one. The variable of concern is not just the amount of rain but timing and distribution of rainfall which can be more important, as seen from the fact that the Indian state of Gujerat has more annual rainfall than the agriculturally more productive state of Punjab (Nicholson, 1975).

We are not concerned with "rainfed" agriculture as such but rather with the implications for local institutional development of having less favorable natural conditions for agricultural improvement. These are contrasted with LID tasks where the physical environment is more favorable, as in irrigated areas. What are the differences to be taken into account when seeking to promote crop production under less advantageous conditions?^{32/}

Areas with limited, excess or unreliable rainfall will generally have a weaker network of local institutions compared to those with irrigation (or ample and reliable precipitation). Central governments find it difficult to staff and supervise their offices in less-favored areas, so LA is less effective. Local governments have a weaker economic resource base to draw on and commonly display similar limitations of capacity as LA. Because the possibilities for profit are less than in richer, irrigated areas, private enterprises are less numerous and less developed.

With the limited resource base, one may find that local organizations (membership organizations, cooperatives and service organizations) are fewer in number or less capable than where the resource base is strong. However, one often finds the traditions of self-help to be more vigorous where the need for them is greater, where the

^{32/} Agriculture in fact includes more than crops, though the term as usually used ignores livestock and trees in favor of field crops. Livestock development is likely to become more important where rainfall is too meager or unreliable for good crops. Agro-forestry is similarly related to rainfall, terrain or other problems that give trees an advantage over other plants. We will be focusing here on issues relating to field crops.

influences of "modernization" and "commercialization" have also been less pervasive. In our study of local organizations' effectiveness, we did not find that local organizational performance was higher where natural resource endowments, infrastructure or per capita income were greater (Esman and Uphoff, 1984:106-114).

So it is not certain that local organizational capacity will be lower where physical conditions are less favorable for agriculture. Moreover, the benefits from horizontal cooperation may be substantial. In his study of agricultural performance in the tribal areas of Zimbabwe, Bratton (1983) found nearly half of the almost 500 households randomly selected were members of agricultural associations sponsored by government, private business or church organizations. To a significant degree, he found maize farmers in groups consistently outproducing individual (non-member) maize farmers, but more important the differences were greater in areas where rainfall and soil conditions were less favorable.

Whereas group farmers produce nearly twice as much as individuals in Chipuriro, they produce almost three times as much in Gutu (the more disadvantaged area). The implication (which needs further testing) is that farmer organizations make the biggest contribution to production in the more marginal areas. (Bratton, 1983:17)

Oxby (1983:54) reports higher yields among rainfed group farmers in Kenya compared to non-group members "who were also assisted by extension workers even though farmers in groups had a lower rate of instructors per farmer. A World Bank project in the rainfed areas of Northern Ghana floundered for some years after failing to set up the farmer groups provided for in the project design to help operate credit, seed and fertilizer programs run from farmer service centers. The project began to get "on track" only after such groups were established. (The URADEP project is reviewed in Uphoff, 1985.)

"Modern" institutions may be less effective in more remote and unfavored areas, which suggests that the strategy for local institutional development should build on any other capacities that exist. Excellent examples of such an approach where disadvantaged populations were practicing agriculture under rainfed conditions are the farmers associations established among the Tiv in Nigeria which built on traditional rotating credit arrangements and the development centers set up among campesinos by DESEC in Bolivia, which capitalized on traditional community solidarity (Morss et al., 1976, both cases are described in the Annex to Report No. 7).

The main environmental feature in such circumstances, compared with irrigated conditions, is that agriculture is more variable and involves more risk. A greater variety of crops will also be grown than with irrigation, partly to offset the factor of risk. Rainfed producers will generally be less interdependent and more dispersed than with irrigated cultivation, and this affects the patterns of local institutional development. Without accepting the thesis that irrigation requires regimentation of farmers and creates power in the hands of a bureaucracy (Wittfogel, 1957), it is clear that irrigation reduces agricultural variability and creates predictability so that agricultural tasks can become more routinized. With more uniform and homogeneous activities, coordination is more beneficial and this establishes a greater role for LA.

Conversely, with more variety, variability and risk in rainfed agriculture, LA is less well suited to be involved in management or even in support of agriculture. Larger responsibilities may be planned for local government, if it can take them. LG should be better able than LA to respond to local variations and to urgent local needs. But more likely it will be private, voluntary or cooperative institutions, more flexible in their operation and more attuned to risk-taking, that can better exploit what opportunities exist in a less hospitable environment.

The dispersal of population in such environments means that most business activities are likely to be less profitable. To be sure, adverse conditions may raise people's demand and willingness to pay higher prices for goods and services (or to accept lower prices for their produce), so some businesses will have incentive to provide goods and services. Working through administrative channels under these conditions is likely to be very expensive. Improvisation, such as having local shopkeepers double as postmasters, is needed for such circumstances.

One might expect to find households under these fluctuating conditions more inclined to use local institutions to reduce their risks. Cooperative farming would be one such means, but it is not common to find real pooling of resources.^{33/} Families prefer to try to maximize their own production by their own efforts. Labor and other

^{33/} We found one study of a joint family farm cooperative and an ex-soldiers' collective at village level in Uttar Pradesh, India (Lerner, 1971). Both were able to pool resources to give members better access to water through tubewells for supplemental irrigation of crops. But in both cases, a significant factor which added an element of cohesiveness was having an agro-business like an oil press or grain mill because there were joint assets apart from the agricultural production. Both local institutions would have been more successful according to Lerner if more protection could have been given against risk, possibly through linkages to state institutions, since risk was inhibiting investment and re-investment in the co-ops.

resources such as animal traction are often exchanged, but the units of production remain discrete. Mutual assistance is sought and given after the fact in case of crop failure. This means that informal local organizations are very important and should be respected and preserved. Introducing more formal guarantees through officially supported local institutions would probably not succeed because where risks and variability are great, their consequences become practically uninsurable. What we see in rainfed areas is usually informal collective self-insurance with no assured level of protection.

In general we find somewhat less interdependence among rainfed producers as compared to irrigated agriculture. Decisions on what to plant and when can be made separately more easily under rainfed conditions. This would seem to account for the greater frequency of cooperatives where there is irrigation, where agricultural activities are more homogeneous and need to be carried out congruently with one another. Moreover, under rainfed conditions, farmers are usually much less dependent on technology that requires inputs from outside the community such as would be supplied through local institutions linked to higher-level private, state or cooperative enterprises. Farmers in rainfed areas are thus likely to have less need for local institutions which handle technological inputs and saleable outputs and thus less vertical dependence on higher-level institutions. We would contrast the following situations:

<u>Dependence among Farmers</u>	<u>Dependence on Local Institutions Linked to Higher-Level Institutions</u>	
	<u>Low</u>	<u>High</u>
Low	(I) Rainfed Millet Production	(II) Rainfed Hybrid Maize Production
High (Interdependence)	(III) Traditional Irrigated Paddy Production	(IV) Irrigated HYV Paddy Production

In the first situation (I), neither horizontal nor vertical linkages are very salient to farmers. Farmers' cooperation is less evidently beneficial, either to produce their own crops or to get inputs or services from outside. The opposite situation (IV) is with irrigated, technically advanced paddy production, which provides incentives for farmers to work together at field level and at higher levels, to get an assured water supply and to have the inputs needed for getting high yields.

Agriculture under most rainfed conditions approximates the first situation. Introducing hybrid maize, which requires purchase of seed each year and which yields significantly better with fertilizer, represents a move toward vertical dependence (toward situation II) without necessarily changing the relations among producers. They may get benefit from access to supporting institutions, but there is still no great need for them to cooperate.

In this regard, the experience of Plan Puebla in Mexico is instructive. There the international center for maize and wheat research (CIMMYT) was trying to introduce new maize varieties, but with little impact. What made a difference was introducing a scheme for group credit. This enabled farmers to get fertilizer and chemicals to improve production from their existing varieties, already adapted to the difficult prevailing ecological conditions. This local organizational approach fostered horizontal connections and cooperation among farmers, which in turn supported better vertical linkages with agricultural support agencies. In effect, this moved farmers toward situation IV in the diagram above, creating conditions more favorable for local institutional development (see Annex, pages 65-66).

Agriculture may appear simpler in rainfed areas because the level of "modern" technology is low. Very basic implements are used. Production follows the cycle of the seasons usually with long slack periods. To be sure, as more knowledge is gained about the farming systems practiced under such conditions, scientists are gaining more respect for the complexity of these production processes, which are not so elementary. They employ a large number of crops and intricate techniques for tasks like moisture retention, weed control and crop protection. Where the natural resource base cannot be taken for granted, special efforts must be made to coordinate efforts at the farm level and at all levels above it as documented by Hill (1982).

One of the few systematic studies of a program operating in a semi-arid environment -- in Kenya -- highlights the interdependence of strategies for increasing agricultural production, developing water resources, and promoting soil and water conservation (Meyers, 1981). Farmers' receptivity to soil conservation promotion, for example, is largely dependent on how well a household succeeds in crop production. Earning some cash income provides resources for investing in conservation efforts, but the latter also become more attractive to a household when it depends on crops as a source of cash income. "Those who seek increased production work harder to insure the continued productivity of their soil and pastures." (Meyers, 1981:87) Off-farm income possibilities are major determinants of a household's ability to absorb the risk involved

in agricultural innovation, so these must figure prominently in a development program for such a resource-constrained environment.

The operational difficulties of carrying out such a program under adverse natural conditions make it imperative that institutional mechanisms be available which can facilitate the day-to-day coordination of various sectoral components. There needs to be mutual reinforcement among activities and certain economies of operation such as avoiding duplication and saving trips. Meyers strongly argues that the local level is the best place for achieving such integration because

from this vantage point, it is easier to grasp and act upon the concrete possibilities for coordination and integration in specific planning and implementation terms. (Meyers, 1981:54)

This does not obviate the need for strong support from central institutions. But particularly in regions where the natural resource base is poor, it is difficult to sustain central capabilities (financial, technological and managerial). Such regions are viewed as "backwaters" by the staff of line ministries, so less qualified or poorly performing staff are likely be posted there, sometimes as a disciplinary measure (Meyers, 1981:56). The paradox is that central institutional capabilities are likely to be weakest where they are needed most. This makes all the more significant Bratton's findings (1983) that the agricultural returns to farmer organization may be greater in the less-favored ecological areas (see Annex, pages 73-74).

Strategies for agricultural development in rainfed areas will need to be conceived and carried out differently, with more devolution, than in previous efforts focused on physically more-favored areas, where financial and human resources for a centrally-directed effort were more available. Governments in many less-developed countries wanting to push their agricultural programs into less-favored areas now face a growing "fiscal crisis" which limits their possibilities for expenditure. This makes new approaches which rely relatively more on local institutions, rather than simply on central institutions, all the more appropriate.

6.0 IMPLICATIONS OF DIFFERENCES IN PRODUCERS

Having considered how decisions on the allocation of tasks among local institutions for agriculture could be affected by differences in what is produced, and under what conditions, it is appropriate to look at who is doing the producing, to see how this may affect LID. The common presumption has been that agricultural producers are "farmers" in the Western sense of the term that they are educated, landowning, settled and male. To the extent that the agriculturally active population departs from this "model," one may expect that standard institutional solutions should be varied somewhat. This is worth considering on the basis of existing information.

6.1 LITERACY

It is widely held that literacy is a requirement for the effective functioning of local institutions. To the extent that farming populations are less literate it might be thought that LID is less feasible for agricultural development. It is hardly likely that lack of literacy (or numeracy) is an advantage for local institutional development. Yet a cross-national analysis of 150 local membership organizations and cooperatives found the correlation between their performance and community literacy levels was not at all significant -- only 0.08 (Esman and Uphoff, 1984:119). So literacy does not seem to be a requirement for local organization success.

Other local institutions should not have to be any more dependent on literacy. When nobody in a community is sufficiently literate, the staff of local administration can be recruited from among educated persons outside the community. This might not be as desirable as having staff from the area but it means devolved administration can function where literacy levels are low. Local governments can also recruit from outside to fill certain positions. The legendary success of many illiterate businessmen in rural communities and market towns certainly indicates that literacy is not necessary for small-scale enterprise.

The need for literacy in local institutions is to some extent a consequence of the paperwork required by higher levels of the bureaucracy which puts an unnecessary burden on the uneducated. King (1981) found this with the cooperatives he studied in

Northern Nigeria.^{34/} We found very few situations in the literature where illiteracy was a real barrier to performance of development tasks through local institutions if the national government wanted them to operate effectively. So this is one characteristic of producers which does not appear to be as important as commonly thought.

Even where the general literacy level is low, there are invariably some literate members of the community who can perform roles requiring reading, writing or figuring skills. The chief value of literacy appears to be that it gives local representatives more status vis-a-vis higher level officials to get the latter to carry out their development responsibilities correctly.^{35/} Whether the national government wants local institutions to be successful is crucial. It can let its staff know that it wants them to conduct themselves supportively despite any inconveniences of illiteracy, or it can accept haughty or indifferent behavior toward members of the public.

One reason why local organizations (and possibly other local institutions) may perform well despite low levels of literacy, so long as the national government is supportive, is because the greater the extent of illiteracy in a locality, the more likely it is that the population includes persons of high intelligence and character who can provide leadership and management talents. Where educational opportunities have been widely diffused, upward social mobility and geographic mobility have often moved many of the most talented individuals out of farming and other low-status occupations and into towns.^{36/}

We should not be unconcerned with the level of human resource development in an area since this is the true foundation for local institutions. Education and opportunities to gain experience in problem-solving, planning, resource management, etc. are certainly to be promoted. But judgments about the feasibility of local institutional development should not be made solely on the basis of literacy levels. Where illiteracy

^{34/} These cooperatives, having mostly illiterate members, had 14 complex forms and reports to fill out regularly, when several simplified documents would have sufficed (King, 1981:262). Such infliction of paperwork is not restricted to co-ops and local organizations. Local administrative staff may be similarly burdened as suggested in Section 2.1.

^{35/} In our analysis of local organization performance, one of the only tasks whose successful performance correlated significantly with literacy levels in the community was "control of bureaucracy" (Esman and Uphoff, 1984:136).

^{36/} One of the few things we are reasonably certain of is that intelligence, like other human capabilities, is distributed across the whole population without regard to race, residence or other characteristics of parents. Though backward social, economic and educational circumstances can prevent high potential from being fully realized, the likelihood of having extremely capable individuals, some of them geniuses in fact, is significant in poorly educated rural communities.

is pervasive, the strategy of LID should rely on simpler, more informal modes of organization. Also, the bureaucracy may need some reorientation to be more sympathetic and supportive toward rural people (Korten and Uphoff, 1981). But the overall case for developing responsible local institutions is if anything stronger where the population is less educated. Interestingly, interdependence appears greater on social if not economic grounds where literacy is lower. Education seems to have the effect of increasing independence as well as individualism, which has some liabilities for LID.

6.2 GENDER

In years past, most literature seemed to assume that "farmers" were without gender, that one did not have to consider whether they were male or female, or even more mistakenly, it was assumed that farmers were all males and that women were simply "housekeepers." Recognition of the role and contribution of women in agriculture has greatly increased in recent years. But this does not help us in analyzing implications for local institutional development of involving women because the LID literature for agriculture is also fairly limited and has been largely gender-blind.^{37/}

Women's associations in rural areas are much more common than previously recognized, as March and Taqqu (1982) have documented. However, generally they are more informal and thus less visible than men's associations. They tend also to be less powerful because they have control over fewer resources. Within their limits, women's associations can carry out a great variety of functions. A recent review of the situation in Nigeria says:

In all the States investigated, there is a powerful tradition of voluntary women's groups. These groups are based on many things, age, religion, culture, or they may be traditional savings societies. In all of the States women showed a tremendous ability to organize themselves and get things done. In many areas women organized themselves into co-operative farming groups and pooled their plots. They created and maintained

^{37/} We were able to cite some documentation in Reports No. 3 and 4 on women's participation in local institutions for rural infrastructure (primarily domestic water supply) and primary health care, though the literature was not very detailed. There are a growing number of studies on women in agriculture, such as Nelson (1983) and ILO (1984). We include in the Annex (pages 72-73) a report on women's agricultural groups in Senegal.

savings societies and other community buildings, often taking care of the organization and staffing of the institution as well. Traditionally women have been involved in co-operative trading and occasionally they handle the marketing of their husbands' farm products or are engaged in the procurement of some farm inputs. (Akande, 1984:132)

From their study of existing women's associations, March and Taqqu (1982) conclude that "active" organizations, those with formal structure and explicit purposes, have more potential for becoming productively engaged in contemporary development activities than do "reactive" ones. Women's groups of this latter sort are very common, but they tend to be essentially defensive and informal, often better described as networks than as organizations. They can be distorted and even destroyed by grafting on new purposes which interfere with their limited, but valuable functions for women belonging to them.

The "active" organizations have real potential, though the majority of cases we find in the literature have not been devoted to agricultural improvement. They tend to emphasize health, education or income-earning opportunities, often engaging in agriculture to support these, as in the mwethya example from Kenya, cited in footnote 18 above. Perhaps this is because women's major obligation to carry out agriculture work is regarded as a given over which they have little control, whereas these other activities are more clearly within women's "sphere."

There are women's organizations such as described in Nigeria which are actively engaged in agriculture. The Umoja women's federation in Kenya has a very impressive record in this regard (Staudt, 1980). In some areas of that country, women are heading one-third of the households and they do generally a majority of the agricultural labor. It has been suggested that women's church groups in Kenya be contacted and involved if agreeable in agricultural extension programs (Moock, 1976:835). These groups are already important local institutions that support activities like chicken-raising and could have a larger role in improving agriculture.

Even if women's groups have not started with a focus on agriculture, there seems to be a strong interest among women to improve the productivity of their agricultural work. This was seen with the Mothers' Clubs in South Korea. Originally organized around family planning and domestic activities, they frequently got into horticulture and other agricultural work (Misch and Margolin, 1975; Korten and Young, 1978).

When women's organizations get involved in agriculture, it is most often to support women in their activities of household production by channelling technical information, credit or other inputs to them or helping with marketing, rather than

undertaking production directly. There are some successful cases of women's group production but their record generally is not impressive.^{38/}

One of the issues debated but unresolved in the literature is the extent to which women should participate in separate or parallel local institutions. One generally finds that women's role in local government is less active than men's, though this does not always mean they are without influence.^{39/} In India, there has been debate over requiring village and district panchayats to reserve some seats for women. Where this has been done to ensure that they have some representation of women in local government, it may have done a little for the status of women but hardly anything for their economic opportunities, since women's representatives have not been able to shape LG agendas to deal with issues that increase women's productivity. Anyway, as noted in Section 2.2, local governments particularly in India have not taken much of a role in agricultural development despite their mandate to do so.

There is some question whether it is advisable to promote separate organizations for women. Especially among poorer strata of the population, solidarity between men and women is crucial in their struggle for survival and improvement. So this would argue against separate structures. But women's membership in distinctive organizations gives them some options, strengthening their position within the family and broadening their horizons. Women without any affiliations outside their families are likely to be more dependent and less ambitious for themselves and their families. So on balance we see value in having some such organizations capitalizing on women's solidarity where this exists. Case studies suggest that such organizations should attempt some

^{38/} Akande (1984) reports successful group production in Nigeria, as does Yoon (1983) in Senegal. On the other hand, one of our studies found women's groups in Upper Volta having notable failures with group production (Taylor, 1981). The Umoja federation in Kenya referred to already organized collective work groups of women and hired out their labor for fieldwork. This did not represent pooled production, however, and earnings went into the organization's treasury to fund health, educational and other activities (Staudt, 1980). Women's collective farms are reported in Mozambique, where a large proportion of households are female-headed, but these are formed at state direction. Women's production efforts in the ujamaa villages of Tanzania have been mostly disappointing (Hyden, 1981).

^{39/} Of 500 members of Rural Councils in Senegal, for example, only four were women (Ba et al., 1984:111). Women in Botswana were previously excluded from participation in the kgotla, the traditional rural local government institution. "Today (however, women) may take part, though they typically sit apart from the men. At the kgotla meetings observed during this research, women generally spoke less frequently than men, though since many women are better educated than men, those women who did speak often carried weight" (Brown, 1983:22).

cooperation and even cooptation of men (see Senegalese garden group case in Annex, pages 72-73, and Comas Women's Academy case in Annex to Report No. 7).

There is a question whether the government service should have special cadres for working with women. There is a common bias in agricultural extension toward working with male farmers, even when women are more efficient managers of farm resources than men (Moock, 1976; Staudt, 1978). Because women's role in agriculture is so pervasive, and because it would be difficult to get sufficient resources and status for separate LA units devoted just to women's work, it does not seem advisable to press for such units as part of local institutional development for agriculture. Rather increasing the number and proportion of women LA staff, especially in extension services, appears to be the better course.

How difficult it will be for women to play a prominent role in the expansion of local private businesses will vary from country to country. Much of the marketing trade in agricultural products is in the hands of women in some countries, particularly in West Africa. In Jamaica, female traders known as "higglers" come to the farm gate and even help in the harvesting of commodities (Lewars, 1982:152-153). Even where historical precedents and cultural values favor women's involvement in private sector expansion, however, there may still be national policies and practices that limit their participation in support of agricultural development. Rules about providing credit from government programs or banks usually discriminate against women (ILO, 1984:56-57). The imposition of "top-down" forms of organization inconsistent with women's existing patterns and values of interaction can discourage women's participation, whereas working with them in ways which are more socially and culturally sensitive can lead to larger and more viable institutions.^{40/}

Agencies seeking to promote local institutional development for agriculture should consider the extent to which the specific institutions, existing or anticipated, are hospitable to active women's roles. Moreover, which women are participating needs to be considered, as many of the most visible national women's organizations are not

^{40/} This is shown in the case study of Nigerian women's cooperatives by Ladipo (1983). The more flexible organizational form for promoting their role in agricultural trade proved successful whereas the authoritarian model, more familiar to the bureaucracy, was a failure. This is consistent with the broader comparative analysis by March and Taqqu (1982). See also Bruce (1980) on experience with market women's cooperatives in Nicaragua.

suited for work in agriculture.^{41/} To the extent there are impediments to full participation by women in agricultural development efforts, some significant share of the local talent which could make those institutions more effective will be absent. This omission can hardly be afforded.

6.3 LAND TENURE AND ECONOMIC STATUS

Agricultural development programs tend to consider only those cultivators who are landowners, regarding those persons who have only labor to contribute as being "inputs" rather than participants in the process of development. Local institutional development for agriculture should not neglect the landless and near-landless, often referred to as the rural poor, since they are important not only for accepting and using new technologies but also for contributions of resources and ideas. It was the landless and near-landless, as we saw in Report No. 3, who were most concerned that local institutions in several countries (panchayats in Nepal and the desa village government in Indonesia) focus on investments increasing productivity rather than on amenities.

One of the major concerns in the literature on local institutions is the effect which a high degree of socio-economic stratification created by differences in land tenure status will have on their functioning (e.g. Blair, 1978). An analysis by Leonard (1982) has helped to assess when these differences are likely to create special difficulties at the local level. National institutions may want to maintain a degree of control over development activities, to ensure all cultivators access to resources and opportunities, when:

- (a) the activities are vulnerable to elite manipulation (for example, distribution of subsidized fertilizer: Blue and Junghare, 1975); or
- (b) elite interests are divergent from those of the rest of the community (for example, introducing a credit program charging lower rates than village money-lenders).

Activities can be delegated to local institutions under conditions of economic and social inequality with fewer adverse effects when, conversely:

^{41/} "Organisations of upper-class women tend to see their function as social. Either they are purely for the social pleasure of the women involved, or they are welfare oriented. Rural women's organisations tend to be oriented more toward self-help (economic) programmes." (Tadesse, 1984:79)

- (a) the activities are not particularly vulnerable to distortion (for example, tick-dipping of cattle); or
- (b) the interests of the landed and landless do not diverge much (for example, control of diseases that affect crops, as crop failure will reduce employment and also drive up the price of food).

Relatively few activities fit these latter criteria fully, but decisions about institutional design should at least take into account the ways the nature of the activity affects participation in decision-making and benefits when dealing with a population where land tenure differences create dynamics for bias.

Where stratification is serious, the choice among local institutional channels may be made differently. What Leonard (1982) calls "alternative organizations," ones with membership restricted to the less-advantaged, may become more appropriate, to complement LA, LG and private business channels. The special "land reform cooperatives" established in Egypt after the major land reforms there are good examples of such organizations. As seen from the village-level study by Harik (1974), they served their purpose at least for a time in giving political influence as well as economic opportunity and social status to beneficiaries who had been among the poorest of the poor. The land reform co-op was necessary for breaking the domination of the landed elite over the local government. (Alternative organizations are discussed in Section 3.3 of Report No. 7.)

Unfortunately, in agriculture, relations between landless and landed are more likely to be zero-sum and competitive than in other areas of rural development activity. In human resource development, benefits for poorer members of the community can be achieved with less likelihood of adverse effects on richer members. Indeed, the latter may gain from better education, health and nutritional status for the former, whereas labor supply, wages and competition for land may be affected by agricultural programs (Uphoff, 1980). Certain public goods like community water supply or common forests for fuelwood offer advantages for elite and non-elite alike, so the effect of stratification on their provision through local institutional channels is mitigated.

However, even private goods like agricultural inputs or marketing services may be provided to the poor in a community through local institutions like cooperatives, even to non-members, under the direction of local elite members, as Tendler (1983) found in Bolivia. The 'rewards can be in terms of status which is desired by persons who already have some sufficiency of economic resources. One should not assume that elites will always use local institutions to pursue their own interests to the exclusion of others'

advantage. This is an empirical question. Nicholson's data (1984) on the distribution of agricultural inputs, particularly credit, for the Green Revolution in India's Punjab show that even if co-ops there were elite-dominated, they did provide greater access to productive inputs to the poorer sectors.^{42/}

One proposition that finds some support in the literature is that elite interests are more likely to predominate at higher levels than at lower levels. Persons of lower status and income are more likely to play important roles at the group than the community level, and more in the community than in the locality.^{43/} In terms of having influence in the bureaucracy this is probably also true. The poor are more likely to be seen and responded to by sub-district personnel than by district officials. LA staff at the locality level or below are even more likely to be responsive because they live in closer proximity.^{44/} This is a consideration which should support a degree of devolution to local institutions even when stratification confronts decision-makers.

Where one is dealing with localities that have a large number or proportion of landless and near-landless, there should be continuing concern over whether local institutions are serving as adequate channels for their participation in agricultural development. Swedish donors assisting the Chilalo Agricultural Development Unit in

^{42/} Apart from activities in which elite and non-elite members of a community have a common interest, Leonard (1982:18) lists three conditions which make elite-run systems more likely to be responsive to the needs of the poor: (i) there is competition for leadership; (ii) the support of the poor is necessary for elites to achieve and maintain leadership; and (iii) at least some elite members are willing to appeal directly to the interests of the poor. Nicholson's analysis (1984) suggests that reduced scarcity of desired goods makes a difference also.

^{43/} This has been documented by Gaige (1975:141-165) for Nepal in his analysis of the panchayat system there. The percentage of representatives from low caste or tribal groups declines as one moves from the village panchayat level to the district panchayat, and then to the zonal panchayat. The likelihood that a poor person will be elected chairman also diminishes the higher up one goes. The Small Farmer Development Program established by FAO in Nepal and other Asian countries recognized this and therefore adopted a group approach for assisting the rural poor. As noted above, this approach permitted small farmers and landless to gain control over the panchayat (LG) in their area (see Annex, pages 66-67). This bias toward elite control at higher (locality) levels but also the possibility of overcoming it by focusing programs at lower (group and community) levels is seen in the Aceh, Indonesia case in the Annex to Report No. 7.

^{44/} The beneficial effects of having local officials in close proximity to the poor can be seen from an analysis of the outcomes of land reform implementation in more than two dozen countries (Montgomery, 1972). The probability that rural people would get more income, more tenure security and more political influence in the wake of land reform and distribution of land to the landless was greater to the extent that decision-making was carried out at lower levels of government, involving LA, LG and LOs.

Ethiopia, operating through LA units of the extension service, were appalled to find that their resources for agricultural credit were going almost entirely to large farmers because the LA staff were making no effort to identify and reach the poor. By working with the staff and redefining eligibility criteria, the pattern of loans was changed markedly within three years' time under a regime which was not particularly progressive.^{45/}

Working with poorer members of agricultural communities can have substantial payoffs. In the San Martin Jilotepeque cooperative in Guatemala, sixty percent of the members did not own their own land. Yet it was possible to introduce a program which greatly increased agricultural production, while reducing soil erosion and promoting non-agricultural activities (see Annex, pages 63-64). Working through a variety of local institutional channels, some specialized and some general, it is possible to get more responsiveness and contributions from the rural poor, which means particularly the landless. They are part of the agricultural production process, but as tenants or laborers they have little voice and stake in it unless the pattern of local institutional development gives them opportunities.

6.4 MIGRANTS

Another image of "farmers" is that they are all settled on the land, when in fact, increasingly agricultural populations include a substantial number of migrants. Once one understands that it is farming communities, not just farms or farmers, that raise the level of production through technological and institutional innovation, we see how local institutions need to take population mobility into account, rather than presume a stable, sedentary population.^{46/}

^{45/} Tenants were only 9% of loan recipients in 1968 and got only 4% of total loans, while in 1971 they were 39% of recipients (with 36% of loans). Thirty percent of recipients in 1968 were landowners with over 20 hectares (and they got 59% of loan funds); three years later they were down to 1% (with 2% of loans) (Cohen and Uphoff, 1977:247-250). We found no data on yield differences by size of holding, but in neighboring Kenya it was found that farms under 10 acres had six times more gross output per acre, and almost seven times more net profit per acre, than large farms which averaged 125 acres (ILO, 1972:167). So the spread of credit opportunities should have led to more total production.

^{46/} Friedman (1982) has put this succinctly in a report on rural development in Haiti: "Of course, peasants do not live in isolation from each other, and more is needed than to work with individual households, though that is necessary too. It is ultimately the peasant community that must be motivated and become the focus for a project."

One needs to distinguish between seasonal migration, where individuals or families move regularly during the year to undertake cultivation, tend herds or earn income where physical or economic conditions are more favorable, and out-migration, where adults leave their communities for several years or longer to undertake employment elsewhere. Money is often remitted to their families, and migrants commonly maintain some stake or presence in the community by visits or contributions.

In countries such as Botswana, Nepal and Yemen, where the Rural Development Committee has worked, it is not uncommon to find out-migration rates of 30 percent among adult males, and in other countries, women may move to cities for short-term or long-term employment. In Central America, whole families move to harvest coffee when that is in season, so movement may include children, though it is adults' participation which is of most concern in LID. Local institutions need to adjust either by moving with the people or by making sure that their activities coincide with people's migration patterns.

In Botswana, migration has long been a way of life to accommodate to the arid or semi-arid environment. Households spend most of the year in the "village" where deep wells give year-round water supply. As soon as the rains start, most households move or send some of their members to "the lands" where arable crops are cultivated while still others take cattle farther away to "cattle posts" where ephemeral sources of pasture and water can be found (Roe and Fortmann, 1982). In the Botswana situation, if local councils or other institutions are based only in the village, where there are year-round residents, they will be made up of older, more prosperous males who can stay behind when younger, less well-off persons, particularly women, have to leave to exploit available resources. Vesting more authority and economic resources in village-based institutions would introduce an undesirable bias into decision-making. Especially if such local institutions are to be dealing with agriculture and natural resource management, the persons actually doing the managing would be poorly represented. Local institutions thus need to find ways to incorporate more migratory persons into their structure where rural populations move about.

In Botswana, out-migration to South Africa often drains communities of their most vigorous, ambitious and best-educated potential leaders. The leadership pool, therefore, at least for men, will often not be the best that the community has to offer. Women, as noted already, do not have equal standing in the "public" sphere. Ways should be found to involve "migrants" while away from the locality, by getting financial contributions and suggestions, and to engage them more actively as "returnees." Their

experience, their education and exposure to new ideas can greatly assist an organization in its development undertakings. It must be kept in mind that they may become so distanced from the village that they no longer represent the community (Fortmann, 1982). One would like returnees to follow the example of the ex-Gurkha servicemen in Nepal who went as recruits into the British and Indian armies. After returning with pensions they have often become pillars of strength in local institutions (Caplan, 1970).

Perhaps the most dramatic migration effects have been felt in North Yemen, where about 40 percent of males have at one time or another found lucrative employment in the Gulf states. This has led to decline in agricultural production as women have been left with more work than they can handle, and as maintenance of the hillside terraces has not been kept up. Repatriated earnings of migrants have provided a generous capital base for the Local Development Associations in rural areas (Cohen et al., 1981). Unfortunately, the LDAs have not systematically channeled such resources into agricultural improvement efforts.^{47/}

This observation in Yemen is not atypical. A review of literature covering Nigeria, Kenya, Ethiopia, Peru, Bolivia, India and the Caribbean finds that migrants seldom sponsor agricultural extension or other collective investment in agriculture, preferring to support buildings and more visible things (Ralston et al., 1983:38-39). This finding parallels our observation with regard to local government that "collective action" for agriculture seems to be infrequent at the community or higher levels, though it is common at the group level on an informal basis. It is an important question for LID whether ways will be found to engage the talents and resources of migrants in agricultural development since the phenomenon of migration is likely to increase in the future. The constructive influence of returned migrants in Nepal is of some encouragement, though their agricultural contribution has been more one of setting examples by their own innovative activity than of strengthening LID for agriculture.

^{47/} One problem the LDAs face is that women's public roles are culturally restricted, and only men are supposed to participate in public meetings. One suggestion by Swanson (1983) is that LDA annual meetings be held during the holiday month when many men working in the Gulf return to their communities for family observances. This would engage more male household heads in LDA decision-making and could also mobilize voluntary contributions. Otherwise households where the male head is away send a junior male to represent them (Swanson and Hebert, 1982). In some communities understandings have been reached so that when important LDA decisions are to be made, the final vote is put off. The issue can then be discussed privately in the households, with women making their views known. At a subsequent meeting, the male spokesman can then speak and vote for the whole household.

6.5 INTEGRATION OF THE AGRICULTURAL COMMUNITY

The implicit model of most agricultural development theories has been one of individuation, from communally-oriented and cooperative "peasants" to self-standing and competitive "farmers," as argued by Weitz (1971). This derives from increasingly discredited "modernization" theory which presumes a unilinear progression from ascribed to achieved status, from particularistic to universalistic norms, etc. In fact, an analysis of the functions of agriculture suggests that what changes are the forms and not in the facts of cooperation and interdependence. Even in the most "traditional" modes of agriculture, production is usually by individuals or households, not groups or institutions. There is exchange of inputs and some sharing of outputs in time of need, but the balance between private and collective efforts tends to favor the former.

As the level of technological sophistication increases, there is more requirement for access to inputs and to marketing and processing facilities, so while individual operations expand and become more differentiated there is a concomitant increase in horizontal and vertical interdependence. While the balance between private and collective efforts in agriculture may shift somewhat, it does not tilt from one end of the continuum to the other as "modernization" theory has suggested. Local institutional development becomes if anything more significant as the scale and complexity of agriculture increase, as suggested by considering the hierarchy of levels indicated in Figure 1.

While the focus of production is the individual or household in the large majority of cases, aggregate levels of production are a consequence of what whole communities are able to accomplish through their networks of institutional support for individual and household producers. In this concluding section on producers, we have raised questions about how to engage in local institutions several major categories of rural residents -- migrants, women, illiterates, landless or land-poor -- who together often make up the majority of rural communities these days.

Local institutions that do not bring them into the planning and implementation of agricultural development -- being satisfied to have only the more educated, settled, prosperous males -- will be limiting the scope of agricultural change in the future and the spread of benefits therefrom. Planners and policy-makers should be thinking of how to integrate all sections of the agricultural community in productive enterprise. Contrary to the image of "yeoman farmers" which dominates development thinking at higher levels, what has been regarded as the "mainstream" of agricultural producers is

not necessarily the majority any more. This is why we have emphasized in this concluding section some of the LID implications of these "non-mainstream" groups.

Institutional networks need to be conceived as providing access to resources and services that:

- (a) upgrade the production of millions of households and
- (b) make that production yield more value to its producers and consumers.

This access is particularly needed for the majority of agricultural producers who have lacked it in the past. The better endowed agriculturalists have less need for new efforts at local institutional development because they have usually been able already to forge at least some vertical and horizontal linkages of their own --with government agency personnel at higher levels, with private suppliers, with trade associations representing the interests of larger producers, etc.

As seen at various points in our analysis of experience, what is needed is seldom the strengthening of any single local institutional channel to promote agricultural growth. Rather it is the importance of complementarities which is impressive. No matter how many criticisms may be made, warranted or not, of government agencies operating at the local level, their good performance is needed for co-ops and for private businesses to succeed. These latter two channels perform better when there is some competition between them, giving producers alternatives to choose between based on quality of service and cost-savings. Service organizations, because of their different motivation and resource base, can fill "gaps" that other institutions find difficult or unrewarding to deal with. Membership organizations are even more often important as "gap-fillers," providing agricultural services of various sorts on a self-help, collective action basis. As Oxby (1983:56) suggests, however, such groups will be more stable and effective when tied in with other institutions which give them legitimacy at the local level. The significance of the whole range of local institutions has been recognized by USAID (1984) as a matter of policy. It is now up to development professionals to find ways of providing for and supporting LID initiatives in agricultural and related projects.

ANNEX

To share with readers some of the most instructive LID experiences, positive and negative, that we found in our review of the literature, we are presenting some capsule descriptions of such experience. Readers are referred to the referenced sources for fuller information.

LATIN AMERICA

BOLIVIA: Agricultural Cooperatives

A recent evaluation of four peasant cooperative associations supported by the Inter-American Foundation provides a number of insights which contradict the conventional wisdom about cooperatives (Tendler, 1983). The co-ops, which have been in operation for almost 10 years and continue to receive donor assistance, have various familiar administrative and management inadequacies. Their membership, for example, is small and appears to have levelled off after reaching only 25 percent of the families potentially served. The prices charged to cover the co-ops' merchandise and services are sometimes too low to cover costs, and collection of loans is casual. The co-ops exhibit many of the same "pathologies" frequently found in Latin American as well as in other parts of the world.

Yet upon closer examination, Tendler found some very positive aspects of their performance. The average donor investment per member family (\$1,000) might be judged more than "reasonable." But when the benefits to non-members are considered the cost per beneficiary goes down markedly, and the ratio of benefits to costs is substantial. Aside from the co-ops' serving as a voice for all farmers on issues that concerned them with the government, two of the organizations undertook public infrastructure projects -- potable water and road construction -- which benefited most of the community. The cooperatives also worked to control contagious crop and livestock diseases, an effort which required (and got) the support of non-members as well as members, benefiting them all.

One instance of what appeared at first to be "loose management" turned out to exhibit a good (if intuitive) understanding of the difference between average and marginal costs. Non-members were allowed to ship their produce in the cooperative truck, for a small charge, if there was space available. This looked like non-members were not contributing their "share." But the co-op was increasing its income to cover more of its operating costs of the truck, which was advantageous economically even if the non-members did not pay an equal proportion of total costs.

Management inadequacies were not randomly distributed but were greater or less depending on the nature of the task. Agroprocessing was consistently the best performed activity, and cooperative stores and credit the worst. Agro-processing worked well because the commodities in question "belonged" to the members and their return from their produce depended on good processing (and storage and marketing). Also, the members regarded the processing facility very much as "theirs" because they had contributed the labor and materials to build it. This created social pressure from among farmers for efficient and honest operation. Furthermore, improving the management of agroprocessing called for basically technical decisions that did not involve politically or socially difficult problems.

The store and credit operations, on the other hand, did not generally perform well because prices were set too low, and there was no systematic effort to get loans repaid on time. The strong social symbolism associated with "cooperatives" apparently made it difficult to charge prices or to follow procedures which might resemble those of "exploitative" middlemen. In contrast, when one of the co-ops rented out a bulldozer to members who needed its services for clearing land, there seemed to be no difficulty in charging a rate that covered all costs. There were no private competitors whose presence would "obligate" the co-op to keep charges lower than private operators.

The leadership of these co-ops came from the more prosperous members of the community who rarely relinquished office. However, since they were also farmers, the leaders shared the same economic interests, e.g. the desire for better crop prices and lower transport costs. Activities such as marketing, processing and stores benefited many non-members, thereby putting benefits beyond the self-interested control of the entrenched leaders.

LESSONS: This study offers many lessons, so only some of its implications will be noted. First, evaluating cooperatives, like other local institutional development efforts, calls for closer and more multi-faceted scrutiny than standard accounting procedures normally provide. The fact that the co-ops had several activities underway simultaneously allowed one activity to subsidize another and to give the institutions some stability and attractiveness missing in single-function organization. (Note that this conclusion differs from that of Tendler's 1976 study of farmer organizations in Ecuador and Honduras.)

Co-ops may be more useful institutions at an early stage of LID but may diminish in utility as some of their functions can be effectively or more efficiently taken over by state or private institutions. This is not something proven by the case studies but rather suggested by the fact that co-ops in these cases fill functional niches that are often filled by the government or by businesses in other settings. The fact that more advantaged persons joined and led cooperatives did not mean that these organizations' benefits accrued only to such persons. If the activities of co-ops produce positive-sum (rather than zero-sum) benefits, members and leaders should be willing to have the benefits of co-ops go also to non-members.

GUATEMALA: San Martin Jilotepeque Cooperative

Although this project began in 1971, the agency which helped initiate activities, World Neighbors, already had a well established reputation in the region since the 1960s. Planned as an "integrated" project, the project started with an agency staff member and six part-time extension workers concentrating on a small geographic area and attempting to learn from the residents through interviews and data collection involving almost 600 families. Activities fairly quickly narrowed to focus on agricultural development.

A review of the data found that corn yields were among the lowest in Guatemala due in part to soil erosion problems. With funding from Oxfam and World Neighbors, a weekly training program on agricultural practices to combat erosion and raise production was organized for two groups of farmers. Each course followed an outline suited to their abilities and learning methods. Members of the training staff visited the farmers in their communities to help put classroom ideas into practice. After nine months, 27 of the 40 original "students" agreed to work as non-paid rural promoters and adopt the "technological package" which, because of its cost, required that \$15 be loaned for one season to each promoter.

Subsequent efforts involved the organization of a credit cooperative and a small input supply store. The cooperative, called Kato-ki (self-help) had 732 members and over \$38,000 in share capital by 1978. Loans are made for agricultural inputs, livestock, land purchases (60 percent of the members are landless), commerce or small industry, housing and consumption. The cooperative also established a banking service for members' savings. The input supply store was established to meet the emerging demand for agricultural inputs. Prices and quality remain attractive enough to draw customers even though four nearby competitors have gone into business in recent years, and members of the co-op are free to choose any store the like. Sales in 1977 totaled over \$23,000 (over \$300 per member).

New members must attend classes where attention is given to the uses and management of credit. When a loan is reviewed by the credit committee and reduced or denied, the reasons are fully explained to the member. Important decisions are made by the cooperative's general assembly with more routine matters handled by elected leaders who, after two year, must relinquish their position.

The project has demonstrated some impressive results. The average net income of a farmer using the improved technological package for five years on one hectare of corn and one of beans has increased over 160 percent. With cooperative-sponsored training and credit services, average yields have increased 110 percent for corn and 60 percent for beans. Membership in the cooperative has increased between 10 and 20 percent each year. By 1978, 63 members had been able to leave the "landless" category by acquiring land. The default rate on loans has been only 8.5 percent. Many members report they no longer have to engage in seasonal migration or seek work on nearby haciendas. (Gow et al., 1979:153-170).

LESSONS: By becoming well acquainted with residents, maintaining continuity of field staff, and showing flexibility, the project was able to focus on the priorities of the residents, and not those of the planners who initially advocated an "integrated" approach. This is a good example of "learning process." When organizing the training program, the outside agency closely consulted with existing religious institutions to identify potential local leaders. Since activities began in a small, staff-intensive manner, important individual and group learning could emerge before undertakings were expanded.

The fact that all new members of the co-op complete the same training program means that the entire membership has relatively equal information about organizational procedures and methods of operation. Limited terms of office contribute to a sharing of responsibility over time. Withdrawal of expatriate staff and external funding when there was evidence of appropriate local capacities to continue the institutionalization process helped preclude a dependence relationship from forming.

JAMAICA: Agricultural Marketing Boards

When the government decided to increase the production of food crops and particularly to promote export crops like citrus, bananas and coffee, it established an Agricultural Marketing Corporation (AMC) to give marketing services and guaranteed prices for commodities. To boost export crops, various commodity associations were set up, officially as membership organizations, but practically as state enterprises. Private buyers and handlers were thought to be too exploitative and thus to be a deterrent to farmers' expanding production.

The prices offered by the AMC were usually too low for farmers to get what they considered sufficient return for their effort. Moreover, the buying system was chaotic, with drivers not always coming when scheduled to pick up produce, or demanding bribes before they would buy perishable foods. Farmers soon learned to by-pass the AMC for foodstuffs and to return to dealing with private buyers. They did not have this option for export crops like coffee and bananas, however.

Banana exports, for example, require a very thorough organization to collect sufficient quantities of assured quality produce which can maintain the satisfaction of foreign consumers. A banana growers' association was set up by the government and all sales for export were required to go through it. Farmers being compelled to "join" took no interest in the association. They often did not even know they were "members" because their dues were automatically deduced from the proceeds of their sales.

The alienation of farmers from "their" association was increased by the staff's high-handed treatment of them and their produce. Rejection of hands discolored by tropical snails was not explained, for example, and this caused much resentment

because members saw the fruit as edible, not knowing that foreign consumers would shun it. Farmers had no control over the price paid (it was kept low for the sake of government profit) so eventually much interest in banana production was lost. (Goldsmith, 1980 and 1982; Lewars, 1982)

LESSONS: Unfortunately, the government agency and the commodity associations (pale versions of membership organization) although set up to promote production ended up reducing it. Both farmers and government were the losers from this. When organizations like the commodity associations and the AMC (whose buying centers constituted "local administration") develop no awareness, commitment or support within the public, and particularly among those persons whom they are supposed to serve, they cannot become "institutions" in any real sense.

MEXICO: Plan Puebla Farmer Committees

This project was started in 1967 by the international wheat and maize research center (CIMMYT) in Mexico to improve the production and incomes of rainfed farmers in the State of Puebla. The National Agricultural University at Chapingo supported the effort. By 1973 it covered 32 municipalities (counties) and involved some 43,000 small farmers (CIMMYT, 1974).

Initially, the project emphasized the adoption of new high-yielding maize varieties, but it soon became apparent that under the prevailing agronomic conditions of Puebla, the traditional varieties did nearly as well, given that farmers needed to maximize combined maize and bean production on their small fields and not just maize. Production could be increased, however, by adding fertilizer and trace minerals that were deficient in the soil (Whyte and Boynton, 1983:37-41).

For farmers to buy such inputs they needed credit. Upon arrival of the second generation of field staff, an extensive system of credit groups was organized. This was based on the notion that groups would be better able to apply pressure on members to honor the repayment obligations than an administrative arrangement which extended credit to individuals.

In a site visit to the project area in 1981, Swanberg found the system had functioned quite well over several years. The use of "community organizers" in forming the farmers groups was apparently quite successful. To increase their capacity to negotiate for better prices, among other things, farmers negotiated with the government for construction of a warehouse. Perhaps even more important was the increased level of knowledge about plant fertilization (Swanberg, 1982).

LESSONS: Building a program on small solidary groups of 10 to 15 farmers proved very successful, similar to the spread of irrigation water management groups in Sri Lanka as documented in Uphoff (1984) and more generally shown by Oxby (1983).

Farmers welcomed the "group discipline" which upheld the integrity of a program that had real benefits for them. Another important element to the Puebla experience involved the sensitivity of project staff to farmers' limitations, constraints and needs (Swanberg, 1982). Specifically, time was invested in observing the performance and rationale of the existing agricultural system, instead of stubbornly insisting that farmers adopt the new technology, which it turned out was not as superior as the technicians assumed. Upgrading the existing technology, through local institutional development, opened the door to subsequent introduction of more appropriate new technologies.

URUGUAY: Sociedad de Fomento Rural

This cooperative, organized around the provincial capital of Durazno, has not had time to become "institutionalized." But it has gotten off to a very promising start, because a profitable combination of "technology" and "organization" has been put together with help from the Inter-American Foundation. The dairy plant run by the cooperative is seeking to encourage small and medium-size milk producers to raise output by guaranteeing stable demand. With pasteurization and packaging of milk in attractive containers, consumers are willing to pay more for the milk they get. In addition the plant produces butter and is in the process of expanding production of cheese with the expectation of export sales.

The dairy producers previously marketed their own milk individually, which required making one or two trips daily by horsecart to distribute milk along an extended route that sometimes resulted in spoilage problems. The cooperative employs a truck to collect the milk at the farmers' homes, thereby saving them from one to five hours of transportation labor a day. This in turn has freed up time for farmers who want to increase crop yields or improve pastures and herds. The advantages of group transportation, processing and marketing give members a tangible stake in making the co-op a success (Hirschman, 1984:18-21).

LESSONS: Though the dairy cooperative with its modern plant and transportation has clearly increased prospects for increasing the economic welfare of producer-members, the status and prestige they have gained may also be a strong inducement for supporting the co-op. "Now they are associates of a much admired, technologically-progressive undertaking, whereas previously their daily milk-peddling treks caused them to be viewed as quite lowly members of rural society." (Hirschman, 1984:21).

The differences in commodities should be noted, however. For some producers, such as wool growers, yearly deliveries or sales can be an exciting variation on their daily routine, giving desired opportunities for social contact. For dairy producers, on the other hand, since marketing is a daily activity it may be boring and little valued. When developing local institutions one needs to take into account the nature of the goods produced and the less tangible social aspects of agricultural life.

AFRICA

BOTSWANA: Drift Fence Groups

"Drift" fences are wire fences built to separate grazing land and crop land. They are usually undertaken as a crop damage protection measure, though they can also ease herd management problems or serve as the basis for grazing management schemes. A few "bush" fences had been built in the 1920 and 1930s, but the first wire drift fence in Botswana was completed at Pelotshetla in Southern District in 1975. After this there was a phenomenal growth in drift fencing. By August 1980, there were 109 fences either completed or underway with a total length of 1040 km. (Willett, 1981, II:9). In Kweneng District by 1980, 14 fences were complete and a further 28 were under construction (Chris Brown, personal communication).

The configuration of each fence is broadly determined by ecological considerations (the location of crop and grazing lands), though the exact line takes into account such things as access to water points and the need for future expansion of crop land. Most fences are locally initiated (indeed all 10 in the area studied by the Institutions Research Project of the Ministry of Local Government and Lands were locally initiated). Often the idea for a fence comes from the example of a neighboring community which has built a fence. In some areas, adjacent fences are linked up to form one long line. In the Iswapong Hills area, one fence made up of 10-15 km. segments each built by a single community now stretches almost 200 km.

Government assistance to the fence groups is part of its overall support program for farmers' groups. The group is expected to provide voluntary labor to cut poles, clear the fence line and build the fence. It must also contribute cash equivalent to 10 percent of the capital costs. In return, the government provides fencing material (wire and gates), equipment (for tightening the wire and digging holes), and extension advice. Maintenance of the fence, once completed, is the responsibility of the group. (Brown, 1983, and personal communication)

LESSONS: Where a kind of local organization provides manifest benefits, it can spread rapidly if easily manageable by members. The support given by the government has been limited but very effective in spreading these groups and fences. It is a good example of what has been called "assisted self-reliance" (Esman and Uphoff, 1984:258-264). The maintenance of fences has been reasonably good, partly because any need for repair is quite evident and failure to make repairs will result in obvious damage (this was one condition mentioned in Report No. 3 for local institutions handling maintenance effectively). Also the "ownership" of the fence is clearly with the group, not the government, an important condition (Coward, 1983).

GHANA: United Ghana Farmers Council

The cocoa industry in Ghana, presently in a shambles, was once the economic mainstay of a prospering economy. Cocoa farmers developed their production beginning in the 1890s essentially on their own, with little help from the government (indeed the colonial government at times discouraged the nascent industry). These agricultural "entrepreneurs" made this small country the world's leading producer by the 1950s (Hill, 1963).

The UGFC grew out of cocoa producers' cooperatives which were started in the 1920s in response to the low price paid by private (European) buyers. At that time, several groups of small producers (most illiterate) tried to sell directly to the London market but were swindled by their agents. Thereafter co-ops stuck to purchasing cocoa beans from members and selling them to European companies to try to get the best price.

When during 1937 it became apparent that the companies were in collusion to hold down the price, growers boycotted them, holding back the entire crop, almost 300,000 tons, for six months until the colonial administration intervened to raise the price. After World War II, growers became one of the main organized "pillars" of the independence movement, as the UGFC was formed and allied with the Convention People's Party of Kwame Nkrumah.

One of the first problems confronting Nkrumah after his party took over the government in 1946 was to combat an epidemic of the serious black pod cocoa disease. The UGFC cooperated with government staff (LA) in explaining to farmers the need to cut and burn infected trees on a mass scale. The campaign could hardly have gone as quickly and successfully without the UGFC's assistance. Partly as a "reward" to the UGFC for its role in helping to win independence, but mostly to get control over the crop so as to divert revenue to the government, Nkrumah gave the UGFC a monopoly on cocoa purchasing.

The result was to destroy it as a cooperative form of organization. Clerks, previously accountable to farmers, now cheated on weight and grading, gave "chits" instead of cash, and demanded bribes to convert the chits later into money. Both farmers' incentive to invest in planting new trees and the regime's popularity suffered as a result. (The UGFC's disastrous monopoly over distribution of machetes is discussed in Section 2.4, footnote 22.) When Nkrumah was overthrown in 1966, one of the military government's most popular acts was ending the UGFC monopoly (Beckman, 1976).

LESSONS: Farmer's "indigenous" capability of organization can be substantial as seen from their starting cooperatives with little outside assistance and from their massive "hold-up" of cocoa in 1937. Co-operatives if given monopoly and state backing may act quite irresponsibly, once accountability to members is severed. The political and economic consequences of this can be quite unfortunate, as seen also in the case of the Jamaica AMC cited above.

KENYA: Kenya Tea Development Authority

KTDA has come to be recognized as a "successful" national institution, bringing small holder tea production from zero before 1960 to one-third of Kenya's exports within 15 years. There are many lessons to be learned from it as an exercise in "institutional development" at the national level (Lamb and Mueller, 1982). Here we will focus on some of the LID aspects of KTDA, having discussed a number of its features in Section 4.0.

From the outset, it was recognized that close linkage with growers was crucial for maintaining quality control, and the structure of farmers' committees was made one of the four operational arms of the Authority (the others were extension, buying and quality control, and factory production).

The basic forums for farmer participation are the Divisional Tea Committees which are made up of elected farmer representatives who oversee production and buying in their area. (In many "locations," the level beneath the "division", farmer committees have also been formed but these are not uniform in these activity.) The Divisional Committees elect representatives to the District Tea Committees, which are probably the most consistently effective level of organization, partly because they make quite "sensitive" decisions about allocating tea quotas.

The District Committees send representatives to the Provincial Tea Boards. About one-third of the national KTDA Board is made up of farmer representatives. Farmers are also represented in increasing numbers on the boards that oversee the operation of tea factories through farmers' purchase of equity shares in the factories. (Presently they hold about 10 percent of factory shares, in what has become a mechanism for mobilizing savings for capital formation in the agricultural sector.)

From the outset the KTDA leadership showed great seriousness about farmer participation. It recognized the need to have institutions that could deal with peasant households as very complex units, since smallholder tea growing was to fit into the existing and ongoing farming systems, not replace them (Lamb and Mueller, 1982:2-3). KTDA was willing to invest some of its financial resources to encourage participation, for example, through organizing farmer visits to Nairobi and paying "sitting allowances" to farmer representatives for time spent on KTDA business.

At the outset, most of the initiative came from "above." Indeed, Steeves (1975:10) characterized the organization initially as "autocratic." But over time grower initiative has increased, with KTDA approval. The technical sophistication of farmers has increased also. One "breakthrough" for expanding tea growing with quality control was to introduce vegetative propagation in place of earlier nursery techniques. Farmers learned this rather quickly and before long were able to do it better than many KTDA staff. In 1980, about half the demand for new tea bushes was met from growers' own stock. This has placed some strains on the policy of limiting individual holdings to one acre maximum.

Interestingly, the KTDA staff have continued to champion the acreage ceiling on egalitarian grounds despite political pressure from somewhat larger growers. (Steeves, 1984). (There is also the quality consideration that smaller holdings are generally more intensively cared for and more carefully plucked.)

The incentive system worked out is ingenious. Once a month, growers are paid a fixed rate (per kilogram) for the greenleaf delivered to buying points for the factory they sell to. At the end of each season, when the processed tea has been sold at the London auction, where most KTDA tea fetches a premium price, the growers get a "bonus," which usually amounts to about 150 percent of the "base" income. The better the quality of the tea leaf delivered to the factory, as well as the better the processing there, the more the factory's tea sells for and the higher the bonus to growers.

LESSONS: There are many lessons from the KTDA experience, some suggested already in Section 4.0. One important element of KTDA institutional strategy has been its considerable decentralization, to the factories and to the provincial, district and divisional levels. The fact that the tea price is rather precisely pegged to some independent measure of "quality" gives all within the system--growers, buyers, transporters, factory workers and managers--good measures of success and makes decentralized management more feasible. Everyone gets clear feedback on performance coupled with material incentives.

For many years, it was said that tea was too demanding a crop for "peasants" to grow it, and all investment and technical assistance was reserved for the tea plantations in Kenya. The performance of KTDA has shown that a system of organization with farmer participation from the field to the factory, and beyond that to the national level, can achieve superior quality and efficiency compared to the more administratively managed plantation operations.

NIGERIA: Gombe Native Authority

The policy of "indirect rule" by the British colonial regime left considerable authority in the hands of traditional leaders in Northern Nigeria, who headed what were called the Native Authorities governing each sub-district area. (Native Authorities were renamed Local Authorities in 1968.) A case study of the Gombe Native Authority by Tiffen (1980:25) concludes that the comparative success of this area in agricultural development has been very much due to the particular performance of its local authority.

All NAs had taxing authority for making local investments, but the Gombe NA in particular avoided malpractices in tax collection, which would have been a disincentive to individual farmers to improve their production, and invested the money collected in education, health, veterinary and agricultural services, which

supported increased production. The traditional NA leaders (emirs) in Gombe were generally progressive in encouraging agricultural modernization and setting a good example in their own fields. The traditional district and village heads, in turn, "propagandized innovations such as the use of fertilizer, worked their own farms actively, and keenly cooperated in the distribution of cotton seed, the organization of cotton markets, etc." (Tiffen, 1980:29).

After 1945, the government started "democratizing" the system of local government by moving to elected officials. In Gombe, where the Native Authority heads were progressive, they were elected to the new Councils. The government, however, was reluctant to give much independent taxing and spending authority to local councils, thinking village people were too illiterate to allow them any control of funds. In Gombe this mattered less because there were many competitive interest groups which put pressure on higher authorities to invest in agricultural improvements which the local government could not undertake.

In communities with strong local leadership, despite the lack of formal taxing powers, "Village Heads who were good organizers could get rough roads constructed or classrooms built by voluntary labor, and they might be able to influence the central NA to allocate the necessary funds for staffing and maintenance" (Tiffen, 1980:32).

"The Village Head is the main channel for Government advice and orders to his people. The Agricultural Officer expects him to enforce the cotton close season (to curb diseases), to provide cotton seed dumps, to organize seed distribution and to disseminate information. The Veterinary Officer expects him to maintain cattle tracks and to inform cattle owners about inoculation facilities. The Forestry Officer expects him to protect Forest Reserves. He has to recruit labor for local public works. The Education Officer expects him to keep this village school full despite prejudice against western education. The District Officer expects him not only to collect taxes, but to maintain law and order, and all for a salary which in 1967 ranged from L42 to L345 per annum."

The government and donor-assisted development projects in the area that have not succeeded have been those that by-passed the Local Authorities, whereas those which had worked with and through the local government have had considerable success. (One water scheme pushed through by high officials without local review and support was a waste of L245,000, Tiffen reports.)

LESSONS: "As Gombe has benefitted with so little expenditure of centrally directed funds, we can take it as an example of the success of the policy of strengthening the rural institutional base of the Nigerian economy. The special political and administrative factors which favored its development are to be found locally, in the power structure that favors majority rural interests; in the effective leadership given by locally rooted families at District and Village levels; and in the comparative absence of extortion, which has meant that local farmers do not fear to work for, and display, wealth." (Tiffen, 1980:35)

SENEGAL: Women's Garden Groups

The genesis of women's garden groups is complex. Traditionally Senegalese women have often cooperated in agricultural tasks, especially for rice production. In the mid-1970s, the government initiated an agricultural development project during a period of drought when there were serious food shortages. Though a similar garden promotion scheme had failed a decade earlier for lack of demand, recent growth in tourism had created an increase in demand for tomatoes, potatoes, etc. and villagers' need for income had greatly increased. Hence the prospects of successful action were more favorable.

Since land could not be purchased outright, the groups began by securing use-rights from village authorities. Land was cleared and fenced by relying on the traditional division of labor; men cleared and prepared the land and also provided the labor for well digging. Because the wells frequently became saline, limited but essential technical assistance was given to the groups by UNICEF and units of local administration. Of particular value was the provision of cement and hand tools, to line the wells. As no pressure was applied by outside agencies on the groups to take on a particular organizational design, each of the more than 50 groups has adapted its form to meet local needs and norms. A discussion of two groups will indicate their diversity:

The women's garden group in Boucotte Ouoloff has 160 members, each of whom paid a membership fee of 1000 francs to join. Two presidents serve concurrently, the younger being in charge of "external affairs" (since she is bilingual) and the senior woman handling "internal affairs" (within the village). With assistance from village men, three hectares were cleared, fenced and a 12-meter well dug. Each member has individual rows to oversee on the plot. However, following the sale of their produce, members must individually contribute 2500 francs to the common treasury to build up its capital fund. Benefits from the savings fund have included construction of a health/maternity center and construction of a road to the garden so it would be easier for the UNICEF-donated truck to transport commodities to city markets and hotels. Five hectares of trees have also been planted by the group to help alleviate fuelwood scarcity.

In the drier area of Dianky, another gardening group has 260 members, 48 of whom are men. Leadership remains exclusively with the women, however. This group works two hectares on a more collective basis than Boucotte Ouoloff. According to the group's president, the organization has "matured" rather quickly due to a previous experience with women's banking and a tradition of cooperative agricultural labor for growing rice and peanuts. Discipline within the group is strict. If a cultivator does not tend her rows, an empty basket is placed next to it. If it cannot be filled from the person's row in the group plot, produce from her/his own individual plot must be contributed. With outside assistance, three improved wells have been built. The group has agreed to take on several experimental projects using new varieties of seeds, provided that they plan and decide what the projects would be. As with Boucotte Ouoloff, provision of a UNICEF truck has facilitated shipment of produce to Dakar, thereby increasing the quantity sold and the profits which each member received. (Yoon, 1983)

LESSONS: The dynamism in women's garden groups comes from their building on indigenous patterns of cooperation and because outside agencies were able to support the organizations without trying to determine how the tasks would be organized and what kinds of sanctions were appropriate. External aid for water source improvements complements the labor and skills already available. Provision of the truck allowed for new marketing linkages which brought groups together as would not have occurred otherwise. An example of innovation in organizational structure when groups are left to determine this themselves is the selection of a president for external affairs, i.e., someone who is wise in the ways of Dakar and can speak French.

ZIMBABWE: Farmers Associations

A systematic study was done by Bratten (1983) to determine the extent, functions and effectiveness of farmers associations in the communal (African-operated) areas of Zimbabwe. Interviews with a random sample of 494 households in four districts revealed that 44 percent of cultivators belonged to some form of voluntary agricultural association. The groups themselves covered a wide range of activities and had connections to a variety of public, private, parastatal and non-governmental agencies -- the Ministry of Agriculture, the Windmill Fertilizer Company, the Agricultural Finance Company, the Cooperative Marketing Union, the Adult Literacy Organization of Zimbabwe, the Savings Development Movement, and the Catholic Church.

A classification of associations according to their sponsorship is understandable from the perspective of the capital city, Bratton says, "but for several reasons it is seriously misleading when viewed from the village. (a) Farmers and not field staff are the prime movers in creating and sustaining the farmers organizations. Farmers justifiably resist being defined as appendages of large, distant agencies. Example: a farmer in Wedza sternly corrected me when I asked if his was an "extension worker group" -- "does he (the extension worker) come here to join our group when there are fields to be planted or weeded?" (b) Farmers in groups feel free to enter transactions with several different agencies and are rarely bound by loyalty to only one. Example: a group leader in Mtilikwe explained that "we can't just speak with one government worker to get all the things we need." (c) Most important, farmer groups with nominally different 'labels' perform essentially similar functions." (Bratton, 1983:5)

In terms of the activities undertaken, 60 percent of the groups identified in the study engaged in exchange of information so as to diffuse technical "know-how" in agriculture. "In part, groups form to overcome the shortage of extension agents in the field and in part to consolidate and dispense existing indigenous knowledge." Just over half the groups (54 percent) engage in mutual work exchange with work parties for planting, weeding and harvesting, sometimes sharing scarce capital

resources like farm implements or draft oxen. Almost half of the organizations (47 percent) make bulk purchases of inputs, particularly fertilizer, and about one third (36 percent) do joint marketing to attain transport economies and better prices. About one-quarter of the groups were multi-purpose, usually with supply and marketing functions having been taken on by production (labor exchange) groups.

"The survey results confirm that, within each agroecological setting, maize farmers in groups consistently outproduce individual maize farmers. The effects of group organization on maize output appear to become more marked as rainfall and soil conditions become less propitious. Whereas group members produce nearly twice as much as individuals in Chipuiriro, they produce almost three times as much in Gutu. The implication, which needs further testing, is that farmer organizations make their biggest contribution to production in the more marginal areas." (Bratton, 1983:17)

LESSONS: We had already formulated our framework for agricultural LID analysis before receiving this empirical study, which supports our analysis quite directly. Actual production is likely to remain as individual or household responsibility, even with some collective action during the production process. The main "group" or other "institutional" functions are to provide inputs and to dispose of outputs on advantageous terms. Even when there is exchange of labor or implements, each participant gets (only) the produce from his or her own field, so there is not cooperative production with a sharing of risks.

The extent of farmer organizations in support of agriculture is itself quite impressive. The mix of governmental, private and NGO initiatives to promote farmer agricultural associations has been fruitful. Yet these connections have not been overwhelming. As a rule, the farmer groups have been able to maintain their own identity and capacity. Groups' contribution to greater productivity is demonstrable from comparative data on yields.

ASIA

BANGLADESH: Comilla Small Farmer Cooperatives

The farmer cooperative sponsored by the Academy for Rural Development at Comilla started out with considerable success in mobilizing funds for agricultural improvement and getting production increases. The groups met regularly and each member made a deposit into his savings account, becoming eligible for loans administered by the group. Farmer representative from each group went regularly to the thana (sub-district) training center run by the Academy to gain new agricultural knowledge which was brought back to the group. The Comilla "model" became one of the most hopeful examples of how small farmers could be enlisted in agricultural improvement (Millikan and Hapgood, 1967; Mosher, 1969; Raper, 1970; Owens and Shaw 1972).

When the government became enthused about the Comilla cooperative, it wanted to expand them to the whole of East Pakistan (now Bangladesh). The leadership of the Academy knew that the success depended in large part on the thoroughness of the training and supervision that brought out the best in the groups' membership and leadership. But they had no control over the larger program (Blair, 1978).

The main undoing of the program was the infusion of huge amounts of credit from the government to be passed on to co-op members. The discipline which had characterized repayment of loans when the funds were mostly the members' own savings dissipated, and arrears began piling up. From almost 1,000 co-op societies with 25,000 members in 1967-68, having paid in 1.6 million thaka as shares and having 5 million thaka in loans--with only 2.2% overdues, the "movement" was expanded to over 5,000 societies 5 years later, with 125,000 members, over 10 million thaka in shares, almost 60 million thaka in loans, and 25% overdue (Blair, 1982:438). Before long the program was as insolvent as any government-run credit scheme. (Blair, 1978, and 1982).

LESSONS: Overrapid expansion of even a good program can kill it because the training, communication, discipline, supervision, and other elements get diluted or destroyed in the process. The philosophy of "self-help" which the organizations began with was washed out by the flood of resources which the government poured into the program. In an attempt to get a larger impact, the government lost much of what effectiveness the institutional model possessed. Of some significance, in the Comilla area around the Academy, where the program in the early stages had the most discipline and innovation, one can see that the level of agriculture practiced is still higher than in surrounding areas (David B. Lewis, personal communication).

INDIA: Gujerat Cotton Cooperative

Many people now know about the AMUL dairy cooperatives which started in the Indian State of Gujerat, but they were preceded by much less-known though similarly successful cooperatives of cotton producers. At the turn of the century, new technology, new markets and better transport made cotton a more profitable crop in Gujerat. However the benefits of increased production tended to go to the merchants who bought the crop.

A cooperative sales society established in 1919 grew in the next decade into a cooperative ginning and pressing society, financed and managed by growers. Efforts by private gin owners to suppress it failed. Between half and two-thirds of the cotton crop was eventually marketed through cooperative channels. Growers were paid 80 percent of market value upon delivery (minus the value of the loan they had taken out in advance of the season) with the balance paid at the end of the season when the crop had been sold. The societies were able to get a better price because of their economies of scale and their quality control.

This structure of cooperatives has supported considerable technological advance in cotton production as a steady flow of new varieties with features of disease resistance, higher yield and fiber quality have been introduced in the last two decades (Nicholson, 1975).

LESSONS: Cooperatives can expand in scale and can become both technologically and commercially sophisticated in competition with private buyers. A similar example is seen with the Sukuma cotton cooperative in Tanzania which grew into a regional federation with its own cotton ginneries and which contributed to a doubling of production (Lang et al., 1969).

The greater returns to farmer-members which a cooperative form of organization for processing and marketing can provide can be a real stimulus to adoption of new technology and to raising output, as also seen in the case of the Bolivian cooperative studied by Tendler (1983) and reported above.

NEPAL: Small Farmer Development Programme Groups

The SFDP was set up in 1975 by the Agricultural Development Bank of Nepal with support from the FAO. This was an unusual donor-assisted project in that only \$30,000 was provided at the outset and the design of the program emerged from intensive field visits which involved consultations with small farmers and landless laborers about their problems (FAO, 1978-79).

The program trained and sent "group organizers" into communities to set up groups of 10-15 small farmers, including landless laborers, to whom credit would be made available on a group basis, without collateral, to improve production. The initial focus was on rice, small animals, poultry, water buffalo raising, vegetables, etc. Women's groups started up with activities on nutrition, family planning, and cottage industry production. The groups often supported building or upgrading schools, establishing first aid centers and literacy programs. The savings program included a fund for emergency loans so that members could stay out of the thralls of moneylenders.

One important consequence has been to increase small farmers' political influence in their communities. In Tupche, where the program was started, the rich family which previously dominated the panchayat was ousted from control, and about 45 small farmers were elected to panchayats in the area through the group solidarity introduced by these membership organizations. (Shrestha, 1980; Ghai and Rahman, 1979 and 1981).

LESSONS: Starting with small, cohesive groups is important for a structure of local institutional capacity. Some of these groups have become multi-ethnic and multi-caste, contributing to more universalistic social relations. Leadership responsibilities within the groups have been passed around, revealing a considerable breadth of talent among this largely illiterate population.

Small farm households may best begin their institutional development by concentrating on agricultural and other directly productive activities. But once organizational capacity is developed, they have other needs such as literacy, hygiene and family planning which can be promoted through these same organizational channels if members have confidence in them.

The role of "catalysts," discussed more in Report No. 7, was crucial here, as the group organizers got new social processes started that the members could and would then continue and elaborate. The gaining of political influence has been an important aspect of the institutional development process, as the panchayat local government now supports the expansion of the program, such as into social forestry (as described in Annex of Report No. 2, pages 40-41).

TAIWAN: Farmers Associations

The Taiwan Farmers Associations, and their parallel Irrigation Associations, are credited with making a significant contribution to agricultural development in Taiwan, which has attained some of the highest yields anywhere through a system of very intensive production practices (Mosher, 1969: 37-40). The FAs provide extension advice and physical inputs (seeds, fertilizer, chemicals, etc.) as well as credit. They also handle purchasing, processing and marketing for their membership, which includes most farmers in the country though membership is at least nominally voluntary. The boundaries of the Irrigation Association are hydrologically determined and differ from those of the FAs; the size of IAs can range from a few hundred hectares to tens of thousands of hectares.

Taiwan was ruled by Japanese authorities from 1895 until 1945, with the object of producing food for the colonizing country. During this period, investments were made in irrigation, fertilizer factories and agricultural research to improve rice varieties. After World War II, when the Chinese Nationalist government moved to Taiwan, great attention was given to rural areas, including an extensive land reform and investment in health, education and law and order.

While farmers in Taiwan have had various forms of local agricultural institutions since 1913, the present form of farmers association including credit cooperatives has been in operation since 1953. The FA established in each township (locality) is financially self-supporting by having several sources of income. First, the government stipulates that all farmers pay their land taxes (in rice) through the FAs, which receive a portion of the tax as commission to cover expenses. Second, all fertilizer sales are channelled through the FA, which makes some profit on these, though the price paid by farmers is fixed and subsidized by the central government. Because the supply of fertilizer has been kept plentiful and the government keeps a vigilant watch against them (through Nationalist Party cadres), corrupt practices are relatively uncommon. Third, the FAs each have a credit department which functions like a bank. Profits on savings and loans are kept by the Association, and they provide funds for extension services, scholarships, etc.

In certain respects, the FAs operate, and are even perceived by some farmers, as arms of government. Indeed the government's general laws for Farmers Associations come to 480 pages. On the other hand, selection of the full-time salaried staff of FAs is made by their elected boards of directors, subject to some minimal specification of qualifications by government. Decisions on who will get allocations to grow highly profitable market crops such as asparagus and mushrooms are left to the FAs. This is an attractive reward which FAs control. Moreover, each Association also has autonomy when it comes to spending the profits of its various input and output operations. (See Stavis, 1983, on both FAs and IAs)

LESSONS: Even though the FAs have operated under much supervision and control from the center, they have created a degree of farmer involvement in managing agricultural improvement which has made Taiwanese farmers among the most productive in the world. In particular, many local staff (equivalent of LA) are employed, supervised and controlled by the FAs rather than by the central government ministry, creating an accountability of officials to farmers that is rare in agricultural development.

A number of financial mechanisms are helpful, such as using FAs to collect land taxes and giving the FA a commission for its service. This permits the government to accept payment in kind, freeing farmers from the need to convert rice to cash as harvest time when prices are low. It also gives the local institutions a stable financial base, while helping the central government with its finances. The FAs handle rural banking quite efficiently and finance useful services and benefits for the whole community from these operations which would otherwise benefit only a few private moneylenders.

Because of their evident success in Taiwan, Farmers Associations have appeared attractive as an organizational model to other developing countries. Indeed, the FA "model" was imported to Malaysia in the latter 1960s, with great disappointment. One cannot transfer an organizational design from one sociopolitical-economic environment to another any more than a biological specimen can be expected to survive where temperature, soil and other conditions are quite different. Some of the organizational principles such as accountability, referred to above, however, can be extrapolated mutatis mutandis to new environments.

THAILAND: Mae Klong Integrated Rural Development Groups

The Mae Klong Integrated Rural Development Project was initiated in January 1974 with the collaboration of three Thai universities, each of which intended to address broad development objectives in the region. Project activities began in villages in the sub-district of Yokkrabat, some 15-20 kilometers inland from the sea. Approximately half the villagers relied on production of palm sugar as the primary source of income. The other half were rice farmers with a lower average income and standard of living.

During the first year, project activities included attempts to improve an earthen flood dike to provide more irrigation, as well as adult education, dress-making classes and village health worker training. None of these efforts continued in the second year as they were not well accepted. However, the university researchers persevered with their efforts to increase rice yields which were low because of high levels of soil salinity and rodent problems. Suggestions for transforming the rice areas into palm production did not appear promising since this would require a large investment and a long "gestation" period until the first crop. Up to this point, all the efforts were implemented through the formal village leaders.

The mid-1975 a newly arrived university staff member, in the course of visiting rice-growing households, found that many people supplemented their incomes after harvesting season by constructing mud dams to trap fish. Based on this information, the researchers began to work toward developing socially cohesive groups of households organized around the prospects for larger-scale fish production.

The organizing activities involved: (a) facilitating small, informal evening conversations among farmers to discuss their knowledge of different varieties of fish and the feasibility of raising fingerlings (this social methodology resembles that of the Banki water supply project reported in the Annex of Report No. 3); (b) sending a number of farmers selected by the groups to observe fish raising at the National Institute of Fresh Water Fishery; (c) starting an experimental fish pond on land owned by one of the informal leaders; and (d) overcoming resistance by the local rice mill owners who were initially able to prevent the group from obtaining loans from the agricultural bank.

By 1976, over 100 households had significantly increased their income through involvement with fish culture. The villagers also began raising fingerlings for replenishment of the ponds. Although the groups remain loosely structured, each household's fish harvest is timed to allow for work groups to do the harvesting collectively and to prevent oversupply of the market. These loosely structured groups have developed roles, practices and procedures to promote a collectively valued purpose and are thus on the road to "institutionalizing" their organizations. (Thai Khadi Research Institute, 1980; Rabibhadana, 1983)

LESSONS: The outsiders had to learn to observe and listen before their expertise could become useful to the rural people and before institutional development based on valued new opportunities could begin. The evolution of a production-centered program out of an "integrated" project here is similar to that reported from Guatemala (pages 63-64 above). The fact that the new technological opportunity was very productive was certainly an important factor favoring the groups' "institutionalization."

When the organizers worked through the established village leadership, they got conventional advice which did not lead to a fruitful agricultural-cum-institutional development approach. By going door-to-door to meet all households, the organizers were able to identify new leadership within the community, coming from the poorer strata, which had ideas and talent previously overlooked or excluded. These persons' experience and the confidence they could generate from others gave the effort a new impetus.

The program was able to proceed without much formalization of the organizations, which would have given vested interests more opportunity to oppose or thwart the program. Such informal groups are vulnerable but also flexible. If the commitment of members is strong enough even outside obstruction may not succeed.

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