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TO SPUR
AGRICULTURAL
GROWTH

IADS DEVELOPMENT ORIENTED LITERATURE

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THREE WAYS TO SPUR AGRICULTURAL GROWTH

—1—

**COMMODITY PRODUCTION
PROGRAMS**

—2—

**FARMING-DISTRICT
PROJECTS**

—3—

**IMPROVING THE
EFFICIENCY OF REGULAR
AGRICULTURAL
AGENCIES**

A.T. MOSHER

INTERNATIONAL AGRICULTURAL DEVELOPMENT SERVICE

1981

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FOREWORD

Many activities can accelerate, or hinder, a nation's rate of agricultural growth. The interdependencies and complementarities among the various influences are so complex that planning and decision making are often frustrating exercises. Is there any way in which the agricultural policymaker's task can be sensibly simplified?

This publication, which draws on the experience of many people who are wrestling with this problem in developing countries, suggests that there is. It is to take three actions simultaneously:

- mount one or more *commodity production programs*
- launch a few *farming-district projects*
- *improve the efficiency of regular agricultural agencies*

The introduction, written as a letter from a former minister of agriculture to his successor, provides a concise review of important considerations in accelerating agricultural growth in a developing country.

The introduction is followed by three chapters, each describing in some detail one of the three approaches. Adopting these three approaches will not make the task of accelerating agricultural growth simple, but ignoring even one of them will slow the pace of change.

The author, Arthur T. Mosher, is one of the most widely quoted writers on agricultural development. Among his best-known books are *Getting Agriculture Moving* and *Serving Agriculture as an Administrator*. He is the former president of the Agricultural Development Council, New York.

Three Ways to Spur Agricultural Growth is part of the IADS development-oriented literature series. The aim of the series is to provide policymakers and agricultural leaders with clear, reliable information that will help advance agricultural development.

A. Colin McClung, *president*
International Agricultural Development Service

INTRODUCTION

The Honorable Minister of
Agriculture
Republic of New Liberty

Dear Mr. Minister:

Allow me to congratulate you on your appointment as my successor. It is a difficult task you have been asked to undertake. It is of great importance to our country that you do it well.

I hope you will forgive me for this rather lengthy letter, drawing your attention to some of the lessons I learned during my incumbency. Some of those lessons are very simple and I am ashamed that I did not learn them more quickly. Others are more complex.

My excuse for burdening you with this review is that one thing I have learned is that a minister of agriculture must move quickly if he is to get anything accomplished. Whether it be a year—or five or six years—his term in office is brief when one realizes that much of what can be done to accelerate agricultural growth takes considerable time to bear fruit. Much of whatever increase in agricultural production may occur within your term of office will be due mostly to what your predecessors did while they were in office, and much of what you accomplish will not show

up as increased production until some time after you have been succeeded by someone else. That implies that it is at least as important for you to be a “statesman for agriculture,” urging those actions that the long-term welfare of our country needs, regardless of short-term political expediency, as it is to administer the programs and policies of your ministry efficiently. There is no more important skill for a minister of agriculture to develop than that of effectively combining long-term statesmanship with short-term political and administrative efficiency.

Another consequence of the brevity of each minister's term is that he needs to find a way to grasp the intricacies of his task quickly, and it is to help you achieve that that I am writing this letter.

My emphasis will be on lessons with respect to *accelerating agricultural growth* because of the urgent need of our country to make the fullest possible use of its agricultural resources and to augment those resources whenever possible. We need it to increase our supply of food, whether for domestic consumption or for export. We need it to provide industrial raw materials such as fibers and oils. We need it to provide employment for our expanding labor force.

A ministry of agriculture has two other functions in addition to seeking agricultural growth. One is to perform tasks that are really part of the agricultural production process. Even when a country's production is not growing, farmers are dependent on the ministry to establish grades and standards for farm products, to provide market information, and, sometimes, to multiply improved seeds, etc. The other is to participate in making adjustments between conflicting needs of agriculture and other sectors of the economy. For example, farm product prices need to be kept high to stimulate greater production and to enhance rural incomes, but they need to be low to hold down urban living costs and, hence, the cost of industrial production.

But at our stage of development, achieving agricultural growth is the primary need and I shall confine my comments to that.

The second important lesson I have learned is how many different people must be involved if agricultural growth is to be achieved. Obviously *farmers* play an enormous role: it is they who manage, and largely accomplish, production on thousands and thousands of individual farms.

But with highly productive farming as our goal, we soon realize the importance of a rather large set of *agricultural support activities* that individuals other than farmers must

perform. These activities include agricultural research; manufacturing or importing fertilizers, pesticides, implements, and other farm supplies; making arrangements for the distribution of farm inputs and the marketing of farm products; helping farmers develop new husbandry and management skills; ensuring that farmers' economic incentives are adequate; improving the land itself through irrigation, drainage, soil conservation, and land-shaping; and training technicians to perform the many specialized tasks that these support activities require.

In addition, one comes to realize that what farmers do, and how agricultural support activities are conducted, are strongly influenced by a rather large set of *national policies*. These include land tenure policies, price policies, and tax policies. Such policies set the rules of the game: they create the economic and political conditions within which farm production and agricultural support activities are carried on. You will recognize at once that some of these national policies are strongly influenced, and frequently decided by, ministries other than your own. You cannot unilaterally control them, and your cabinet colleagues are likely to accuse you of trespassing on their domains when you raise questions with respect to them. Yet you cannot remain silent. Instead you have a responsibility to help your fellow ministers realize

the ways in which the activities and policies of their ministries affect agricultural growth.

Thus, multitudes of farmers, thousands of technicians in agricultural support activities, and hundreds of politicians, officials, and molders of public opinion are involved in accelerating agricultural growth. A minister of agriculture can help many of these people serve the cause of agricultural growth more effectively through activities for which he is administratively responsible; others he can affect only through his influence and leadership.

A third lesson I have learned has to do with the optimum *location of agricultural support services* that need to be available throughout the countryside.

We all know that it is on farms that agricultural production actually takes place. We also know that for agricultural growth to occur, farmers must have access to various inputs such as fertilizers, seeds, pesticides, equipment, etc. They must also have access to markets for farm products and information about new technologies, and it helps if farm credit is also available. We know that all of those need to be within easy reach of farmers, but we have not given enough attention to just where, throughout the countryside, they should be made available.

In former days, when farming was mostly self-sufficient (few if any inputs were purchased and farm products were used at home or within the local community), a pattern of village shops and unimproved roads or paths grew up to serve that kind of a rural economy. As our ministry's activities to encourage agricultural growth were developed, we established district offices, but the number and location of those offices were determined primarily for our convenience and by the location of existing roads connecting the larger market towns. We did not start by asking the question: What rural pattern of agricultural support services do farmers need?

The answer to that question is simple. If rapid agricultural growth is our objective, agricultural support services need to be so located that *all* farmers have easy access to them. However, achieving that result requires considerable thought and analysis. It would be unduly expensive to make those services available in every village or town, but all farmers cannot be adequately served by our existing field offices: they are too far apart.

We need to arrange for agricultural support services to be available at selected local market centers close enough together that all farmers can get to one or another of them and return home again within about half a day. What that dis-

tance is should depend on the means of transport available to farmers. If they must walk or use only animal-drawn carts, these selected local centers should not be more than about 10 kilometers apart. Where faster means of travel and transport are available they can be farther apart.

We shall continue to need our *district* rural service centers, but their role should be to serve local centers rather than to serve farmers directly. The personnel of all local agricultural support organizations need to be *supervised* and those that distribute farm inputs and credit need easy access to *wholesale supplies* of those inputs. It should be the role of the district offices of our ministry to provide those supervisory and wholesaling services for all local agricultural support activities that are publicly provided.

A fourth lesson I have learned is the great importance of *tailoring programs* aimed at accelerating agricultural growth to the situations in different parts of the country. There is a strong tendency—and considerable political pressure—to concentrate resources on those activities believed likely to give the greatest production increase in the shortest possible time, and then to spread those activities over the entire country. To accede to that pressure is both shortsighted and wasteful.

I suggest that a key to addressing this problem rationally is to classify the land in each farming district by its potential for agricultural growth. In some areas the right kind of program can achieve considerable production growth within three to five years. Such areas have good soils, suitable topography, favorable temperatures and moisture conditions, and feasible new technologies for at least one major crop that is grown in the area. These areas can be classified as having an *immediate growth potential*.

To capitalize on that potential, the agricultural support activities that may be needed include on-farm testing of the available new technologies to find out precisely where they can and cannot be effective, conducting economic studies to determine where those technologies can be profitable to farmers, making sure that a sufficient number of local units of agricultural support activities are established and operated efficiently, and extending or improving farm-to-market roads.

There probably will be other places in each district where growth in production cannot be achieved quickly. The soils may be just as good and temperatures as satisfactory, but perhaps irrigation is essential before production can be raised appreciably, or perhaps improved technologies remain to be identified or developed through adaptive research, or roads or bridges may need to be constructed.

Such areas can be characterized as having a *future growth potential*. Increased production three to seven years hence may be possible if agricultural support activities to overcome the present handicaps are launched now. Research, providing irrigation facilities, and building roads take time. They must be undertaken for several years before production begins to respond. Thus in areas of future growth potential all resources should initially be devoted to meeting those pre-conditions. In areas of future growth potential, it is wasteful to begin the type of program that is appropriate for an area of immediate growth potential because the pre-conditions for success do not yet exist.

Finally, some parts of some farming districts may have a *low growth potential*. There are places where topography is too rough, soils too poor, or water for irrigation too scarce for farming ever to be a highly productive occupation without major technological changes that cannot now be foreseen. The people living in areas of low growth potential for agriculture deserve attention, but it is useless to devote resources to agricultural production where increases are virtually impossible. Instead, development efforts in such areas should center on raising nonagricultural production and incomes, providing educational and health facilities, and improving and extending main roads. But those are tasks for ministries other than the ministry of agriculture.

Some of those with whom I have discussed this tailoring of programs to fit the current needs of areas of immediate growth potential and of future growth potential have mistakenly inferred that I recommend giving more initial attention to areas with immediate growth potential, where production can be increased quickly. That is not my position. Fitting programs to areas with immediate growth potential and those with future growth potential might result in spending as much per capita in the latter as in the former. But whatever is spent in areas with future growth potential would be concentrated on those activities that can meet the pre-conditions for a take-off in production, such as adaptive research, irrigation, and highway access. Money would not be wasted on activities for which the area is not yet ready. And by not doing anything agricultural in areas with low growth potential, money would be saved for other ministries to devote to more fruitful activities there.

A fifth lesson I have learned is that the appropriate criteria for deciding what activities the ministry of agriculture should undertake in each part of the country, and what resources to devote to each, are *complementarities, sequences, and gestation periods* rather than cost-benefit analyses of each activity.

For example, you may have noted that in areas of immediate growth potential I advocate immediate and simultaneous attention to establishing local and district units of a set of agricultural support activities including:

- distribution facilities for farm inputs
- market outlets for farm products
- extension services to help farmers develop new skills
- farm production credit
- numerous on-farm trials
- building and maintaining farm-to-market roads

That is because of the high *complementarity* among these activities. Each strengthens the impact of the others. If any one is neglected, all the others are less effective.

Sequences are important, too. Adaptive research should have been undertaken in our country long before it was. Similarly, it seems to me now that we should have given much earlier attention to rural roads. We tend to leave them for later consideration. But I have noticed that extension workers, credit officials, and other "change agents" seldom venture far from roads. Perhaps we should start by extending rural road systems instead of leaving them until last.

The time between the launching of an activity and its first impact on farm production is also significant. Such *gestation periods* are particularly long for major irrigation works and for training research scientists.

Consequently there is frequently a tendency to delay starting them and to give them fewer resources than they deserve. Had it not been for the enormous investments Mexico made in irrigation facilities and rural roads for two decades prior to 1950, it would not have been possible to increase wheat production so rapidly when improved technologies became available.

In fact, it is fascinating how frequently rapid increases in farm production occur only after the passage of time during which activities with long gestation periods were sustained even though they were yielding only minor production increases. In that regard, activities with long gestation periods are like basic research: they are absolutely essential but they have to be sustained largely on faith that they ultimately will be useful in ways that cannot be readily predicted.

If your experience is like mine you will frequently be urged to undertake a new activity, and to extend it rapidly to the whole country. It was several years before I learned always to ask myself such questions as:

1. Are we already well started on activities that should *precede* the one now being proposed?
2. Is there high complementarity between this activity and others in the same part of the country? If so, should we make provision for those other activities simultaneously?

3. How long is the likely gestation period for this new activity? While a long gestation period should not deter us, we should recognize from the start how long it will be before we can expect the activity to begin to affect production.
4. In our present programs what is the balance between activities that can be expected to increase production fairly quickly and those with longer gestation periods that can increase our resources for farm production five to ten years hence?

What it took me the longest to realize is the significance of the fact that most farmers produce several different commodities and that there are important complementarities among farm enterprises—the different crops and classes of livestock that each farmer produces. There is a strong tendency for us to think in terms of individual commodities. We need to do that because increases in production do occur commodity by commodity. But we need also to recognize that farmers think in terms of their total *farming systems*, that is, their combinations of production enterprises. Sometimes these farming systems involve growing two or more crops in a field at the same time. Sometimes they involve growing several crops in succession in a field within the same year. If changes we recommend in the production of one crop upset the system, we may, in effect, be

recommending increased production of one crop at the expense of an offsetting reduction in the production of other crops within the system. Shortsighted recommendations do not build farmers' confidence in those who are advising them.

Finally, I was bothered throughout my term of office by a gnawing awareness that the ministry was not *appropriately organized and operated* to do its job most effectively.

Much of the way in which our government is organized is a legacy of our colonial past. During the colonial period, the primary concerns were maintaining law and order, collecting revenues, and promoting the production of certain commodities for export to the metropolitan country. A governmental structure appropriate to those objectives was devised and installed. Since gaining independence we have made certain changes, usually copying organizational patterns from agriculturally more advanced countries where the geographic structure of agriculture is already well developed. As a result we do not now have a pattern of organization within the ministry of agriculture that is well designed for our most important current task—promoting agricultural growth.

Moreover, day-to-day governmental operations still reflect our colonial history. In that period a pattern of

operations was devised that made it possible for a few foreign top administrators to make all policy decisions, with an intricate set of rules and procedures to keep day-to-day operations in line with those decisions. We now need a pattern of governmental operations geared to a rapidly changing society and providing for the efficient operation of a wide variety of developmental activities, including a productive set of agricultural support activities. We need styles of administration and operating procedures that emphasize creative innovation rather than maintaining the status quo.

We have tried to bypass the inadequacies of operational procedures by setting up a number of independent agencies outside the regular agencies of the ministry. But the time has come when we should thoroughly revise the organization and operations of our regular agencies in ways that will increase their capacity to meet our current needs.

All of the foregoing lessons add up to the realization that pursuing agricultural growth successfully is a complicated and tricky business. It is easy to get lost in the intricacies. All through my term as minister, I kept looking for some way to simplify the process of giving due attention to everything that needs to be

taken into account. That in itself is dangerous, because the process has to be complicated if it is to be effective.

I came finally to the conclusion that there is a set of *three complementary activities* that, if undertaken simultaneously, could both maximize agricultural growth in the short run and increase our agricultural resources for the future:

First, mount *commodity production programs* in areas that have immediate growth potential.

Second, launch a few *farming-district projects*, which seek to make the most of the resources of selected geographic areas, with recognition that areas with immediate growth potential have different needs from those with future growth potential.

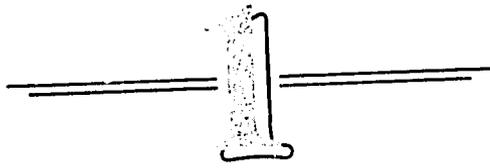
Third, undertake to *modernize the organization and the operating procedures* of the ministry of agriculture itself and of each of the agencies within it.

I wish you well!

Cordially yours,

Former Minister

Each of the three ways to spur agricultural growth discussed here is the subject of one of the following sections.



**COMMODITY PRODUCTION
PROGRAMS**

From time to time a country has an opportunity to increase substantially its production of a farm commodity such as rice, wheat, maize, soybeans, potatoes, sorghum, or some other. Such opportunities usually arise as the result of a research program that has developed improved technologies: one or more improved crop varieties, improved pest-control or disease-control measures, new cultivation practices, or some combination of these. Occasionally, opportunities arise not because new technologies become available, but because of new price relationships that make it profitable to adopt technologies previously available, but not heretofore profitable.

To take advantage of such opportunities for agricultural growth, the primary requirement is to launch activities that will accelerate the widespread use of the new technologies wherever in the country they are effective and profitable. That combination of activities constitutes a *commodity production program*.

CORE ACTIVITIES

The core of any commodity production program should be four activities: on-farm testing, technical assistance to farmers by production specialists, adaptive research, and integrated research and extension.

ON-FARM TESTING

Much if not all of the adaptive research that gave rise to currently available technologies will have been conducted at experiment stations where it was not subject to the judgment of farmers as to profitability or risks due to pests, weather, or insufficiently skillful husbandry. Before those new technologies can be confidently recommended to farmers, they need to be submitted to the rigors of on-farm testing.

Moreover, even though the agricultural areas where the program is to be mounted may seem to be quite uniform, there are almost always variations of soils and microclimates that limit the degree to which experiment station results can be duplicated in farmers' fields. Such variations are encoun-

tered even in irrigated areas with good water control, but they are much more pronounced in rainfed areas. In the Puebla Project in Mexico, for example, it was found necessary to divide the project area, which was only about 1,500 square kilometers, into 16 "producing systems" and to develop a specific set of recommendations for each of them. It was largely through an extensive program of on-farm testing that those producing systems were identified.

TECHNICAL ASSISTANCE TO FARMERS BY PRODUCTION SPECIALISTS

After on-farm testing has revealed ways in which production of the commodity *could* be increased under each set of local conditions, farmers need technical assistance in actually achieving the higher production that is possible. To provide technical assistance to farmers requires extension personnel who combine the farming ability to apply the new technologies successfully and the teaching ability to develop the

CORE ACTIVITIES OF COMMODITY PRODUCTION PROGRAMS

1. On-farm testing
2. Technical assistance to farmers by production specialists
3. Adaptive research
4. Integrated research and extension

required new skills in farmers. Unfortunately, training of extension workers too often concentrates on the latter to the virtual exclusion of the former.

There are two principal approaches to combining the two types of skills in extension workers. One is through very frequent in-service training in which the two are combined. Examples of this kind of training are provided by the Allahabad and Etawah projects in India and, more recently, by the "training and visit" system of extension advocated by Benor and Harrison.

The other approach is to set up training programs geared to the growing season of a particular crop. An example of this approach is the production training courses first established by the International Rice Research Institute.

At IRRI each production training course is timed to start at the season for seedbed preparation and continues through the harvest season. Trainees spend most of their time in the field actually producing seedlings, transplanting, weeding, irrigating, and harvesting rice. They learn to identify pests and diseases and to apply control measures. They are taught the communication techniques that could most effectively be used in teaching farmers to use the new techniques. Overall, the purpose is to make sure trainees acquire the skills necessary to grow a crop of rice and the confidence that they can do it successfully. In other words, they are trained to become rice production specialists.

ADAPTIVE RESEARCH

When a commodity production program is undertaken, it is almost always discovered that certain new technologies fail to increase production in some parts of the program area. In the Puebla Project, for example, it was found (through on-farm testing) that varieties of maize developed at an experiment station only 125 kilometers away and at about the same altitude performed no better than varieties already in use locally. But additional adaptive research undertaken within the project area showed that by increasing plant populations per hectare, by changing sowing dates, and by changing the composition of the fertilizers applied, production could be considerably increased even with traditional varieties. Meanwhile, plant-breeding research was launched within the program area to see whether really superior varieties could be developed.

No matter how adequate the technologies first introduced may be, new problems always arise as a program progresses: certain diseases may increase in severity, or pockets within the program area may not respond like the rest of the area. Such emerging problems call for additional adaptive research.

INTEGRATED RESEARCH AND EXTENSION

In the past research has often been viewed as an activity for experiment stations and laboratories only. Extension, on the other hand, has been viewed as a field activity in which the

chief professional skills were special teaching methods. Those narrow views are changing.

Now it is recognized that a considerable amount of research must be conducted in the field, under the conditions that farmers face in different parts of the program area and that on-farm testing can make important contributions to the extension process even while itself being research. It is being realized that those giving technical assistance to farmers must be able themselves to produce the commodity on which a program concentrates. Consequently, intimate and continuous interaction between research and extension workers is now seen as a key activity of commodity production programs.

ADDITIONAL ACTIVITIES

Every commodity production program should include the four core activities described above. Very frequently, however, it soon becomes clear that one or more additional activities are needed as well.

It may be found that arrangements for the supply of farm inputs, such as seeds, fertilizers, or pesticides, are inadequate, so a system for the distribution of inputs is devised and incorporated into the program. In the Puebla Project the formulations of the fertilizers being offered for sale in the program area were inappropriate. Members of the program staff met with the national fertilizer manufacturing agency and succeeded in getting suitable fertilizers made available.

In the same project, although credit was available in the area, the conditions on which it could be secured kept the smaller farmers from having access to it. To meet that difficulty, program staff members helped farmers band into groups that would take joint responsibility for loan repayment and thus be eligible to obtain credit.

In many places, success in the production phase of a commodity production program has quickly led to the need for improved post-harvest technologies such as grain drying and storage. For example, the "Masagana 99" program, begun in 1973 to increase Philippine rice production as rapidly as

possible to eliminate the need to import it, adopted an elaborate mechanism for coordinating and monitoring the performance of all agencies within the country that were related to rice production, marketing, storage, and processing.

Communications were an important part of Masagana 99. A massive public education program was mounted via radio, newspapers, posters, and special events to alert the public to the seriousness of the rice situation and to the measures being undertaken to change it.

An agricultural support activity that is functioning reasonably well should be left alone. Such agricultural support activities as credit, building rural roads, or distributing farm inputs are not, or need not be, commodity-specific. They can serve farmers' needs with respect to a wide variety of farm commodities. A commodity production program benefits if those activities are being improved *simultaneously*, but it usually is better not to integrate them administratively with the core activities of a commodity production program.

In general, it can be concluded that anything that can be effectively achieved by *consultation* with other agencies (such as making more appropriate fertilizers available, as was done in the Puebla Project) should be handled in that manner. The more activities that are administratively embraced within a commodity production program, the more complicated the program is to administer.

The four core activities are basic. How many other activities to add will depend on local circumstances—the variety and number of trained personnel available, the administrative capacity of the agency responsible for the program, the efficiency of existing agricultural support activities, etc.

STRENGTHS OF A COMMODITY PRODUCTION PROGRAM

A commodity production program is a powerful tool for raising agricultural productivity. It has several major strengths.

ACCELERATES EXPLOITATION OF IMPROVED TECHNOLOGIES

It is the urgency of the need to accelerate agricultural growth that makes commodity production programs attractive in many countries. Without such programs, improved technologies may spread among farmers, but more slowly.

Commodity production programs can accelerate production increases in two ways. First, on-farm testing and adaptive research facilitate adjusting new technologies to local variations, thus making increased production feasible over a wider area. Second, technical assistance by production specialists can increase farmers' awareness of the opportunities for greater production. It can also enhance farmers' abilities to use the improved technologies.

HAS BUILT-IN CAPACITY TO TACKLE PROBLEMS AS THEY OCCUR

The old idea was that research must come first, to be followed later by extension activities to get the new technologies widely adopted. Now it is realized that although research is important in order "to have something to extend," its role does not end there. Instead, researchers must go with extension workers into the field, monitoring on-farm testing and conducting additional adaptive research within the program area. When research workers do that, they are on hand when unanticipated problems arise and can tackle them promptly.

TENDS TO INDUCE IMPROVEMENT OF AGRICULTURAL SUPPORT SERVICES

As new technologies are introduced by a commodity production program, the weaknesses of existing agricultural support services are revealed and attention can be directed to improving them. In many places the availability of new production technologies leads to improvement in irrigation. In the Punjab districts of India and Pakistan, thousands of new tube wells were installed. Similarly, as the marketable surplus of a crop expands, the need for grain driers, improved storage, better market information, and improved marketing facilities becomes clear, and that leads to increased attention to those needs.

So long as production is mostly for home consumption there is little need for improved rural roads, but as the marketable surplus increases, and improved technologies call for the use of farm supplies and equipment that must be transported to

STRENGTHS OF A COMMODITY PRODUCTION PROGRAM

1. Accelerates exploitation of improved technologies
2. Has built-in capacity to tackle problems as they occur
3. Tends to induce improvement of agricultural support services
4. Gives experience in re-orienting research activities

many widely separated farms, the incentive to improve rural roads is markedly increased.

In other words, in the process of disseminating improved technologies, a commodity production program increases the pressure for both private and public agencies to develop the whole set of agricultural support services on which *general* agricultural growth depends.

GIVES EXPERIENCE IN RE-ORIENTING RESEARCH ACTIVITIES

Meeting the research needs of commodity production programs provides valuable experience in achieving the changes in research organization and emphasis that each country needs more generally:

- greatly increased emphasis on on-farm testing
- adaptive research promptly responsive to emergent problems
- concentration on major commodities
- links to international research resources

LIMITATIONS OF COMMODITY PRODUCTION PROGRAMS

While commodity production programs have many strengths, they have certain limitations as well.

A TENDENCY TO FAVOR MONOCULTURE

Each commodity production program, by definition, works primarily with a particular farm commodity. In the beginning it works *only* with that commodity and the tendency is for it to continue indefinitely to do so.

Farmers however are more interested in total production per hectare per year, regardless of the number of farm commodities involved, than in production per crop per season, no matter how important that crop may be to the national economy. But each commodity production program is concerned about an individual commodity with little concern for the impact on total *farming systems*. Consequently commodity production programs tend to promote monoculture.

A TENDENCY TO SKEW PATTERNS OF AGRICULTURAL PRODUCTION

In pursuit of increased national output of an individual farm commodity, a commodity production program usually tries not only to raise yields but also to expand the area devoted to the crop. In addition, a commodity production program tends to foster national farm price policies that increase farmers' incentives to grow the crop. As a result, a commodity production program can divert farmers from producing other crops that the country also needs for better diets or for earning foreign exchange. This skewing of patterns of agricultural production may or may not be to a country's advantage.

A TENDENCY TOWARD MULTIPLICITY OF FIELD STAFFS

It is a central characteristic of a commodity production program that its staff includes research people who concentrate on one crop and extension agents who are trained as production specialists in that crop. Frequently, however, there are several major crops in a region, and technologies may be available for increasing the production of more than one of them. It may then be thought desirable to launch more than one commodity production program. If that is done, however, there will be several sets of field workers operating in the area. In such cases, it may be more economical and just as

effective to adopt the more traditional pattern of having a single extension field staff that is competent to advise on entire farming systems, and that can help farmers develop skills in selecting the most profitable enterprise combinations for their farms.

A TENDENCY TO NEGLECT DEVELOPMENT ACTIVITIES WITH LONG GESTATION PERIODS

Commodity production programs by no means cover the many requirements for agricultural growth. Instead, they concentrate on a few key activities that together can accelerate production of a *particular* farm product in those *parts* of a country where available new technologies are profitable.

LIMITATIONS OF A COMMODITY PRODUCTION PROGRAM

1. Tendency to favor monoculture
2. Tendency to skew agricultural development
3. Tendency toward multiplicity
of field staffs
4. Tendency to neglect developmental activities with long
gestation periods

Because commodity production programs promise relatively rapid production increases they tend to draw funding away from activities that might set the stage for production increases a few years hence. These latter activities include research on other farm commodities, extending irrigation facilities, improving drainage, and building major highways, all of which have relatively long gestation periods.

These limitations should be recognized, but they should not be allowed to discredit the commodity production program idea. The capacity of this approach to accelerate the exploitation of existing improved technologies is a great asset. So is its built-in capacity to tackle emerging problems promptly. And its catalytic function of drawing attention to, and inducing development of, other agricultural support activities makes a commodity production program an effective cutting edge for more general agricultural development.

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**FARMING-DISTRICT
PROJECTS**

A ministry of agriculture is, or should be, responsible for exploiting the total agricultural resources of the country. To discharge that responsibility it engages in many activities. It tends, however, to promote each activity separately. It is likely to neglect attention to how all activities can best support each other in rural areas. It frequently does not carefully determine what intensity of each activity is needed in different parts of the country in order to be most effective and efficient. It usually implements each activity following the procedures and the style of administration that prevailed in previous governmental operations.

A ministry may of course try to correct weaknesses in its present program simultaneously throughout the entire country. Usually, however, it should try new methods of operating its activities in limited geographic areas—in one or more farming-district projects—before attempting to apply the modified procedures widely.

The objective of a farming-district project, then, is to exploit fully the *total agricultural resources of a geographic area*, while developing methods that could feasibly be applied much more widely.

PROJECT AREA: "THE FARMING DISTRICT"

Farmers need to have certain agricultural support services conveniently available at local market centers:

- a retail outlet for farm inputs
- collection points for marketing farm products
- the services of an extension agent
- an office to extend farm credit

For these local agricultural support activities to operate efficiently, each must be supported by a wholesaling organization (for inputs, for example) or a supervisory office (for extension, for example). The wholesalers and supervisory offices should serve as large a contiguous group of farming localities as can be supported effectively from one central location. The area served from one such center is a *farming district*.

The farming district, therefore, is the logical geographic unit in which to experiment with organizing and operating the rural activities of a ministry of agriculture. Although in some

countries, such as India, Pakistan, and Bangladesh, the term "district" is commonly applied to units for general governmental administration, such administrative districts sometimes are considerably larger than functional farming districts as here defined. Whatever term is used, there are substantial advantages in having the boundaries of a farming district coincide with those of one or another established geographic units of general governmental administration. In any case, compromises must be made because the ideal size of a farming district for some agricultural support services is larger than it is for others. (Criteria and procedures for determining the optimum size for farming districts are discussed in *Creating a Progressive Rural Structure*.)

CLASSIFICATION OF THE AGRICULTURAL POTENTIAL OF RURAL AREAS

Areas with immediate growth potential: Areas that have good soils, suitable topography, favorable temperature and moisture conditions, and feasible new technologies for at least one major crop that is grown in the area. Probable needs are on-farm testing, improved agricultural support activities, farm-to-market roads.

Areas with future growth potential: Similar in natural endowment to areas with immediate growth potential, but lacking an important ingredient for quick increase in agricultural production, e.g. irrigation facilities, a major highway, or productive new technologies. Probable needs are long-term investment in irrigation, road building, or research.

Areas with low growth potential: Areas where the natural endowment is too poor for agriculture ever to be a highly productive occupation, barring unforeseeable major technological changes.

LOCATION

Since a major aim of farming-district projects is to demonstrate how the rural activities of a ministry of agriculture can be effectively organized and operated, each such project

should be located in an area representative of considerably larger parts of the country.

In addition, it is desirable for some of each farming-district project to have an immediate growth potential and for some of it to have only a future growth potential. Including a considerable area with an immediate growth potential facilitates an early impact on production thereby helping to validate the approach. Having some land with only a future growth potential is useful to demonstrate how a program can combine appropriate activities for the two types of area.

Initial projects also should be in areas where major roads are mostly adequate.

FOCUS ON TOTAL FARM PRODUCTION

Unlike a commodity production program, a farming-district project does not limit its attention to just one commodity. Instead, it seeks to increase total crop and livestock production in the area, no matter how few or how many crop or livestock enterprises may be involved. It must, therefore, be concerned with all *farming systems* in the district and experiment with improving them and sometimes with introducing new ones.

BRINGING ALL LAND INTO ITS MOST EFFECTIVE USE

A farming-district project gives attention to areas of land that have future growth potential as well as to those with immediate growth potential, adapting its program to the current needs of each. For lands with future growth potential, the project probably will concentrate for the time being on research, or irrigation, or major highway access, or perhaps some combination of the three. For lands with an immediate growth potential, it may concentrate on improving local agricultural support services, on building farm-to-market roads, or on launching commodity production programs for selected commodities.

The goal of a farming-district project is both to increase aggregate production quickly where that is feasible and to enlarge the district's capacity for expanding production 5 to

15 years hence. In pursuing that dual goal it pays particular attention to *sequences*, *gestation periods*, and *complementarities* in choosing its activities separately for areas of immediate and future growth potential.

THREE CRITERIA FOR ALLOCATING RESOURCES AMONG AGRICULTURAL ACTIVITIES

Complementarities

Some actions have little chance of succeeding unless certain other steps are taken simultaneously. Examples of actions that have high complementarities are establishing distribution facilities for farm inputs, establishing market outlets for farm products, improving extension services, expanding farm credit, launching on-farm trials, and building farm-to-market roads.

Sequences

Some actions have little chance of succeeding unless certain steps are taken beforehand. Adaptive research should precede the formulation of recommendations. In some areas, improvement of rural roads should precede intensive extension campaigns.

Gestation periods

Some essential actions have little chance of making an immediate impact. Training of research workers influences agricultural output only years after it has started. Major irrigation works are slow to pay off. Nevertheless, essential projects that have long gestation periods should not be postponed indefinitely.

MAKING OPPORTUNITIES AVAILABLE TO ALL FARMERS

In the same way that a farming-district project should seek to bring all agricultural land into its most effective use, it should also seek to make opportunities to increase production equally available to all farmers regardless of the sizes of their farms.

One means is to make sure that agricultural support activities are equally available to all. If all farms are small, agricultural

support services available to some farmers are appropriate for all farmers. But where some farms are small, and others are large, agricultural support services tend to be designed with the needs of the larger farmers in mind. As a result, inputs may be available only in larger units, or local service centers may be established too far apart, on the assumption that all farmers have vehicles faster than a bullock cart.

Another means is to ensure that farming systems appropriate for small farms are given special attention. (For a good description of how this can be done see *Small Farm Development* by Richard R. Harwood.)

Some countries have set up special programs to serve small farmers exclusively. That can be effective, but it is likely to increase costs by requiring duplicate services for other farmers in the same localities. It is better to design support services so that they serve the smaller farmers, and then make those services available to all.

SELECTIVE IN THE ACTIVITIES UNDERTAKEN

A farming-district project should include the four core activities of a commodity production program: on-farm testing, technical assistance to farmers by production specialists, adaptive research, and integrated research and extension. But in addition there should be activities that focus on total farm production, that endeavor to bring all agricultural land in the project area into its most effective use, and that make opportunities to increase production available to all farmers. The danger is that the demands of multiple activities could lead to a large, expensive, and complicated program. If it is expensive, it cannot effectively serve as a model for similar projects in other farming districts. If it is too complicated, its administration may be too cumbersome to be efficient.

The solution is to establish some priorities and carefully select the activities to be included. In doing so it is useful to distinguish among three terms used to describe development projects or programs: "comprehensive," "simultaneous," and "integrated."

Before World War II there was considerable talk about “comprehensive” rural development, by which was meant activities to serve the total needs of people in rural areas. Gradually, however, that term passed out of use, partly because it was discovered that certain elements of such programs were better served by separate programs—programs in education, health, and agriculture, especially, had quite different administrative needs. Moreover, each was served by an existing governmental agency and efforts to integrate their activities administratively often created more problems than they solved.

In other words, it became clear that certain activities relating to rural development ought to be implemented *simultaneously*, but that those activities need not always be administratively integrated. Separate educational, health, and agricultural programs were created. This trend also led to separate programs to serve various aspects of agricultural growth, such as research, extension, and farm credit. And it led to neglect of the distribution of farm inputs and the marketing of farm products—activities that in most countries were left to the private sector.

Consequently, talk about “integration” revived. Now, however, it was not administrative integration of all rural development activities that was recommended, but only integration of those that could be substantially more effective when administratively integrated. Such, for example, has been demonstrated to be true of adaptive research, on-farm testing, and extension conducted by production specialists in commodity production programs.

Recognition of the importance of these separate but interlocking concepts of comprehensive, simultaneous, and integrated activities led to the concept of farming-district projects. They *integrate* the activities of a ministry of agriculture that are conducted in the countryside (as distinct from those activities, such as deciding on tax and price policies, which take place largely in capital cities). Meanwhile, farming-district projects seek through consultation with other agencies to encourage *simultaneous* attention to complementary activities that are needed in each district.

Those complementary activities may be carried out by various ministries or by the private sector (where marketing, or the retail distribution of farm inputs, or extending farm credit is in private hands).

Thus, properly run, a farming-district project is highly selective in the activities it undertakes. It is concerned about all activities that can accelerate agricultural growth on all the agricultural land of the district and on farms of all sizes. But it does not try to conduct all of them. It includes only those that are logical rural activities of a ministry of agriculture and that are not being reasonably well conducted within the private sector. Meanwhile, it does everything it can to foster cooperation, interaction, and consultation among all agencies and businesses trying to serve the needs of rural people within the project area.

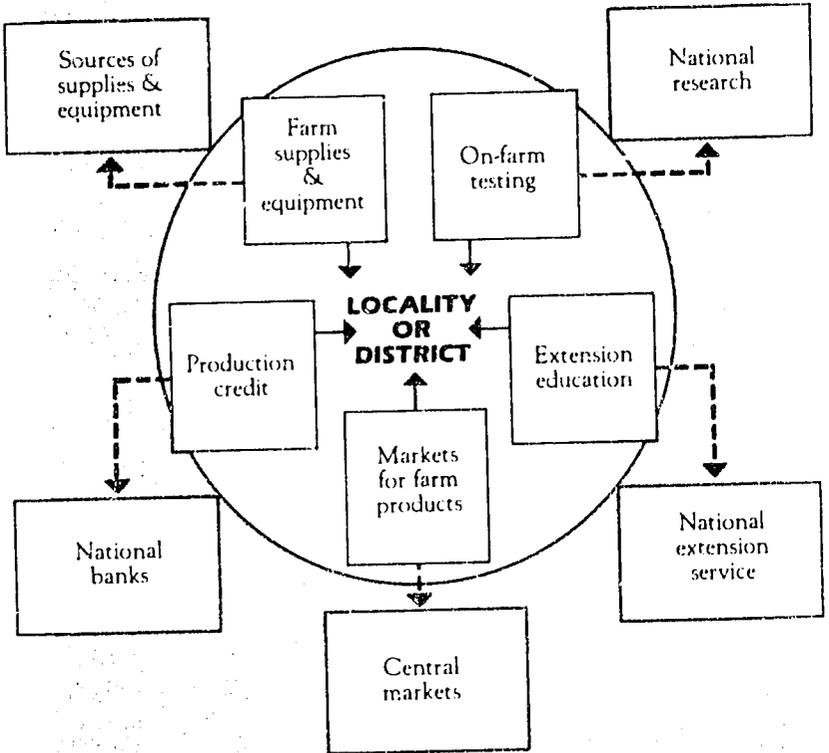
DUAL ORGANIZATIONAL NEEDS

A farming-district project needs to be organized in a manner that will promote cooperation among all agricultural support activities *within* the project area without severing functional connections between district and national units of each agricultural support activity. (Sometimes the functional ties to national agencies are cut in order to achieve cooperation among agricultural support activities at the local level. An entirely separate staff is set up, responsible to a project director. While that gives the project autonomy to vary the program to fit local needs, it sacrifices the technical support of national agencies and risks arousing jealousies that will make widespread duplication of the project more difficult later.)

Conventional agricultural agencies are so organized as to make all units of each agricultural support activity responsive primarily to directives from a national office. By contrast, a farming-district project should be organized to be primarily responsive to varied current needs in different parts of the district. Its organization should also foster cooperation among all agricultural support activities within the project area.

DUAL ORGANIZATIONAL NEEDS OF EACH AGRICULTURAL SUPPORT ACTIVITY

- - - TIES TO NATIONAL ORGANIZATIONS OF THE SAME ACTIVITY
 ——— COORDINATION WITH OTHER AGRICULTURAL SUPPORT ACTIVITIES IN EACH LOCALITY AND DISTRICT



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In order to meet those requirements, a farming-district project needs considerable autonomy, but each agricultural support activity still needs the technical support of a national unit of the same type to rely on.

APPROPRIATE ADMINISTRATION

In addition, a farming-district project needs to be organized and administered to foster *experimentation*. It is almost an axiom with respect to a farming-district project that, in the

beginning, none of its staff, including its director, really knows how to do the job. The objective of accelerating growth may be clear, and many of the specific tasks that must be performed in pursuit of that activity may have been identified. But exactly how to go about it, and how best to honor the various complementarities that are involved, have to be learned gradually as the project is implemented.

One administrative device that is effective in meeting those needs is *administration by staff conferences*. This concept of administration recognizes that the field staff and administrators, collectively, possess the most relevant knowledge as a result of grappling with the various aspects of the program day after day. In conferences held at intervals of one to four weeks, all members of the staff should be encouraged to participate, learning from each other while planning and implementing project activities.

But this process of learning from each other needs to be supplemented by the injection of new knowledge and skills from outside the project staff. That can be accomplished through another administrative device, *frequent in-service training*, utilizing specialist trainers from outside the project. A session of in-service training can profitably be combined with each staff conference, each time concentrating on knowledge and new skills that can strengthen the program for the next one to four weeks.

Still another important administrative device is to arrange for local farmers to participate in the selection of program elements for each season's activities, in setting targets for achievement, and in program implementation. Not only are farmers more enthusiastic about programs they have had a part in planning; they can help make a program more realistic. They have valuable insights about what is and is not feasible, and frequently about what should be attempted first and what should be postponed.

The means for involving farmers need careful consideration. It is seldom wise to institute a formal arrangement for selecting a few farmers to "represent" a much larger group. There is too much danger that such positions will be captured by large farmers or conservative leaders of the status quo. It is usually better to arrange numerous occasions for

farmers to participate informally in the discussions of plans and to enlist their cooperation in program implementation whenever possible.

INTERACTION WITH NATIONAL RESEARCH AGENCIES

Because a farming-district project is in so many ways experimental, it needs to be constantly interacting with national research agencies. But two kinds of friction may arise as a result. One is that farming-district projects and national research agencies are likely to compete for the same scarce research talent. The other is disagreement about who should be responsible for research activities within the project area—how much should be conducted by project personnel and how much by personnel of the national research agency. It is only by recognizing that cooperation is mutually advantageous and by devising mutually acceptable working arrangements that this problem can be resolved satisfactorily.

NO FIXED TERMINAL DATE

No target date should be set for ending a farming-district project, because it is hoped that it will set a pattern for later activities over a much wider area. However, before being launched it should be assured of financial support for a least five years.

CRITERIA FOR SUCCESS OR FAILURE

There are three criteria for evaluating a farming-district project:

1. Are appropriate steps being taken to foster agricultural growth on *all* of the land in the project area, other than areas of low agricultural growth potential?
2. Is agricultural production rising faster within the project area than it is in other similar agricultural regions?
3. Is the approach being successfully applied in other parts of the country?

Affirmative answers to either of the first two questions indicate that progress is being made, but only if the answer to the third question is affirmative can the project be judged to be an unqualified success. The first question can reasonably

be asked by the end of the first year and should be asked again each year. The second question should be asked each year, but no appreciable increase in production on a district-wide basis should be expected before the third or fourth year. An affirmative answer to the third question should not be expected before the fourth or fifth year.

STRENGTHS OF FARMING-DISTRICT PROJECTS

In summarizing the strengths of farming-district projects it is useful to contrast them with those of commodity production programs, not to suggest that one is better than the other, but to demonstrate how each complements the other.

The first strength of a farming-district project is that it builds on the total agricultural resources of the district. In a commodity production campaign the whole emphasis is on one commodity even though opportunities for increasing production of other commodities may exist in the same localities. Moreover, a commodity production program is

STRENGTHS OF THE FARMING-DISTRICT PROJECT

1. Builds on the total potential of a district
2. Demonstrates a pattern for nationwide rural activities of a ministry of agriculture
3. Directly attacks the weaknesses of agricultural support activities
4. Can embrace commodity production programs

productive only in areas of immediate growth potential. By contrast, a farming-district project deals with all of the major commodities that can be produced in the district. And it includes activities to meet the varied current needs in all parts of the district, in areas of both immediate and future growth potential.

The second strength of a farming-district project is that it can develop and demonstrate an effective way for a ministry of

agriculture to organize and manage all of its activities throughout the countryside. A commodity production program must always be limited to those parts of the country where that commodity can be grown. By contrast, a farming-district project embraces all of the responsibilities of the ministry of agriculture in the particular part of the country that the project covers. And its unit of organization and operation is the farming-district: the area that can effectively be managed from one wholesaling and supervisory center. That is a pattern that is appropriate for all programs of the ministry of agriculture countrywide.

Third, a farming-district project emphasizes strengthening the total rural infrastructure of agricultural support activities in the project area, since that is at the heart of accelerating agricultural growth, along with developing improved farm technologies. It does not limit its activities to the core activities of a commodity production program and wait for the weaknesses of other agricultural support services to become crippling before giving attention to them. Instead, it tackles them head-on, recognizing that the full range of agricultural support services is crucial to the use of all improved farm technologies.

Finally, a farming-district project can include one or more commodity production programs wherever they are appropriate. There is no need to choose between the two types of projects.

LIMITATIONS OF FARMING-DISTRICT PROJECTS

One limitation of farming-district projects is that they cannot deal effectively with matters requiring national decision-making. A farming-district project can only deal with ministry activities that are conducted *in the countryside*. Tax and price policies, land tenure policies, and the manufacture or importation of farm inputs are among the many important influences on agricultural growth that are beyond the reach of farming-district projects. (It is this limitation, in part, which gives importance to the third major way of accelerating agricultural growth, to be discussed in the next section.)

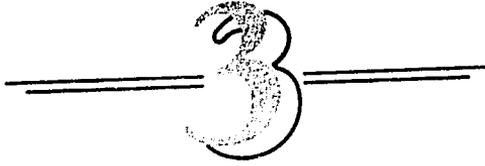
A second limitation is that a farming-district project is complicated to design and administer—more so than a commodity production program. A farming-district project must include activities appropriate in areas of future growth

LIMITATIONS OF THE FARMING-DISTRICT PROJECT

1. Cannot deal effectively with matters requiring national decision-making
2. More complicated to administer than commodity production programs

potential as well as in areas of immediate growth potential. It must be concerned about total farming systems, not just about one commodity system. It must have specialists knowledgeable about the whole spectrum of agricultural support services.

The wide range of activities of a farming-district project is simultaneously a limitation and an opportunity, because if the project succeeds it can demonstrate how all of these activities can be combined in a nationwide pattern of rural operations by a ministry of agriculture.



**IMPROVING THE
EFFICIENCY OF REGULAR
AGRICULTURAL
AGENCIES**

Despite their value, commodity production programs and farming-district projects are but temporary and makeshift arrangements for dealing with specific problems.

Commodity production programs are temporary in that they attempt to narrow the gap between present production of a farm commodity and the production that could be secured using available technology. When that gap has been substantially closed, the task of the program is completed, until still better technologies become available.

Farming-district projects are temporary in that their function is to develop and demonstrate an efficient pattern of ministry of agriculture operations at the farming-district level. After such a pattern has been established and widely copied elsewhere in the country, there will continue to be district units of national programs, but they will not be unique "projects."

Both of these approaches are makeshifts in that they involve adjustments to the weaknesses of existing agricultural agencies and programs—research that is not focused on high priority problems or that does not include on-farm testing, extension carried on by field agents who are not production specialists, credit agencies that do not make credit equally available to farms of all sizes, etc. Commodity production programs and farming-district projects are attempts to overcome those deficiencies for the commodities or limited geographic areas with which they deal, but they do not tackle the fundamental problem of improving "regular" national agricultural agencies and programs so that special projects are unnecessary.

Furthermore, neither commodity production programs nor farming-district projects can deal effectively with a number of factors bearing on agricultural growth that require decisions and actions at the national level: ensuring adequate wholesale supplies of fertilizers and other farm inputs, determining policies regarding farm input and product prices, adopting tax policies, executing land reform programs, and allocating public investment funds among agriculture and other sectors of the economy, etc.

To deal with these deficiencies it is well to launch an additional activity simultaneously: to seek to improve the

efficiency of all regular activities of the government that influence the rate of agricultural growth. This approach is more complicated than the first two. It may require major organizational changes. It usually requires changes in the attitudes and behavior of government agents and officials—changes that may be more difficult to achieve than alterations in the production behavior of farmers.

Because of political and bureaucratic sensitivities there is always a reluctance to start this activity. Without it, however, a government is condemned to pursuing important objectives with inappropriate policies, cumbersome procedures, and inefficient personnel. And until the performance of agricultural agencies is improved, resources will be squandered and agricultural growth will be retarded.

For this important third activity to be successful, it must have the wholehearted support and the continuous participation of the minister of agriculture himself. All three approaches need the minister's support, of course. However, once a commodity production program or a farming-district project has been authorized, the minister can delegate authority to someone to direct it, and thereafter he need be personally involved only from time to time.

To improve the efficiency of regular agricultural agencies, however, the minister must be involved almost constantly. He may set up task forces to give full-time attention to various phases of the effort. Such task forces can investigate problems and formulate proposals. But the minister must participate in most of the decision-making and he must personally see that the decisions are implemented.

Still, what more important task is there for a minister of agriculture than to re-shape the agencies of his ministry so that they can become more effective?

INSTRUMENTAL MEANS FOR IMPROVING AGENCY PERFORMANCE

Although agricultural agencies differ greatly in the nature of their tasks, and in their administrative, organizational, and operational needs, there are six instrumental means that can be used to improve the efficiency of all of them.

1. PROMOTING PROFESSIONAL GROWTH

A common complaint of administrators is that their personnel are not competent. The solution is to surround the staff with opportunities for professional growth, and then to insist that each staff member take advantage of them.

One type of professional growth is *technical upgrading*: helping each member of the staff to master relevant background information and increasing his skill in performing each of the operations for which he is responsible. Technical upgrading has to be specific for each agency because the needed technical knowledge and technical skills differ from agency to agency: one set for research, one for distributing farm supplies and equipment, one for extension, one for providing farm credit, one for marketing farm products, etc.

Another aspect of professional growth is gaining an improved *understanding of the "task" and the "task environment"* of the agency in which the employee serves.

The task of an agency consists of what it is supposed to do and whom it is supposed to serve. Is it to serve farmers directly? All farmers? Small farmers only? Only those farmers who grow particular crops? Only those in particular geographic areas? Or is its task to serve farmers indirectly by providing services to other agricultural agencies? To raise these questions is not to imply that one answer is correct and another is not. It is to say only that each agency, and each employee, needs to be quite clear about what its task is.

The task environment of an agency consists of the circumstances within which the agency must operate. These, too, need to be well understood. What are the limitations of the

improved technologies it has available? What are the goals and policies of the national government, which it must accept as given? What are the resources it has for its work? How adequate are the programs of other agencies on which the success of its own program is partially or wholly dependent?

In addition to the above, each person in an agency will be more competent if he achieves a *general understanding of agricultural development* as a process and of the inter-relationships among all agricultural agencies. Individuals in all agricultural agencies will be more competent if they realize that the variability of soils and moisture supply and the vagaries of weather cause many farmers—especially small-holders—to value the stability of farm production more highly than securing maximum yields in the best years. Everyone employed in agricultural agencies needs to learn to think in terms of “systems”—farming systems, commodity systems (production, plus marketing, plus storage, plus distribution), and systems of agricultural support activities. This phase of staff upgrading need not be different for each agency; in fact, it is better if it is the same for all.

Finally, arrangements for stimulating professional staff growth should include provision for *expanding and sharpening administrative skills*. Not all staff members will become administrators, but an agency functions better if all members of its staff understand the administrative process. All need to realize that 12 “*essential*” tasks must be performed if an agency is to be well administered:

Tasks of prior planning

1. Setting performance objectives for the next fiscal period
2. Budgeting
3. Determining a work schedule
4. Planning information flows

Tasks of execution

5. Assigning tasks
6. Supervising personnel
7. Authorizing expenditures
8. Maintaining physical facilities
9. Resolving conflicts

10. Revising programs to fit emerging situations
11. Reporting and assessing progress
12. Selecting and promoting employees

In addition to those essential tasks there are five "strategic" tasks to keep the agency improving:

1. Maintaining staff morale
2. Staff development
3. Thinking ahead
4. Forging links with complementary agencies
5. Expanding the agency's resources

Clearly, the relative importance of the essential and strategic tasks of administration vary among agencies. Some an administrator must carry out himself. But some tasks, particularly those involved in prior planning, can be done more effectively if he invites the counsel of his staff members in performing them.

Basically, whatever the task of an agency, an administrator or manager is one who gets results primarily through the activities of other people. Consequently, skill in getting along with people and in arranging for them to work together constructively is part of being a good administrator and it is useful to all agency personnel whether they are administrators or not.

2. PROVIDING INCENTIVES FOR MORE EFFICIENT STAFF PERFORMANCE

Opportunities for professional growth can increase the *capacity* of agency personnel to perform more effectively, but they do not ensure that personnel will operate up to the limit of their enhanced abilities. For that to follow, adequate *incentives* for high quality performance must be provided.

Higher salaries are the most frequent proposal whenever incentives are discussed. They are important, but so are other types of incentives. One is to ensure that workers have good equipment with which to work, and readily available supplies of needed materials. Another, for services operating in rural areas, is appropriate vehicles to give them mobility. A third is frequent visits by agency officials to let all personnel know that they are interested in them and value what they do. A fourth is frequent staff conferences at the district level in which all members of the staff have an opportunity to partici-

pate in decision-making. All of these build staff morale and there is no more effective incentive to good performance than the feeling that one is part of an important and well-run agency.

Government agricultural agencies face special problems in trying to improve financial incentives because they are parts of hierarchical government services in which salaries are based more on initial academic qualifications and seniority

INSTRUMENTAL MEANS FOR IMPROVING AGENCY PERFORMANCE

1. Promote professional staff growth
2. Provide incentives for more efficient staff performance
3. Create more appropriate patterns of organization
4. Improve agricultural planning
5. Adopt more efficient operating procedures
6. Use appropriate styles of administration

than on performance on the job. Moreover, the personnel of many agricultural agencies work in relative isolation in rural areas under such different local conditions that it is difficult to assess the performance of each staff member fairly.

Private firms have more freedom to pay their personnel whatever is needed in order to ensure good performance. They also have more freedom to promote persons to higher paying positions. For those reasons, serious consideration should be given to encouraging private firms to distribute farm inputs, market farm products, extend agricultural credit, and multiply improved seeds. It is always advisable to *permit* the operation of private agencies in these fields even when it seems useful to have public programs, too, in order to prevent monopolies from developing or to serve groups of farmers that private firms may not adequately serve, such as small farmers.

3. CREATING MORE APPROPRIATE PATTERNS OF ORGANIZATION

National agricultural agencies are seldom appropriately organized to promote agricultural growth. Often the organizational pattern is a legacy of a colonial period when agricultural growth was not the primary objective and when the process of agricultural development was less well understood than it is today. In many cases that pattern has been copied from countries in which the structure of a modern agriculture has already been achieved. Or it may be the result of piecemeal creation of one agency after another, each to meet what was once considered to be an urgent situation.

What is needed at the present time in many countries is to rethink, in an overall fashion, what agricultural agencies the country needs in order to accelerate agricultural growth, how each of those agencies could best be organized, and how the various agencies should be organizationally related to each other. Although that reconsideration may lead to different conclusions in different countries, it is useful to have some sort of an ideal organizational pattern in mind to serve as a model.

Six Divisions of the Ministry of Agriculture

One pattern for reorganization is to establish a ministry of agriculture having six main divisions, each responsible for meeting one of the basic requirements for agricultural growth:

- Agricultural research
- Ensuring adequate wholesale supplies of farm inputs
- Developing a rural infrastructure of agricultural support services
- Giving attention to farmers' incentives
- Improving agricultural land
- Strengthening arrangements for educating and training agricultural personnel

Suggesting that each of these be the responsibility of a major division of the ministry should not be taken to imply that all activities related to them should be administered by the ministry. Ensuring that wholesale supplies of inputs are adequate, for example, may be managed by the private sector or by a ministry of industries. Road construction and maintenance is likely to be the responsibility of a ministry of

highways or public works. Price policies must have the approval of the ministry of finance. Regardless of who manages each activity, however, the ministry of agriculture needs an organized capacity to monitor and influence what is happening with respect to every activity or policy that affects the rate of agricultural growth.

A *division of research* would develop most of the new technologies that make agricultural growth possible. (Others will be developed by farmers and private firms.) It would be organized to facilitate research on commodity systems and farming systems. It would be responsible for undertaking research on major crops, livestock, cropping systems, and crop-livestock combinations, on soil management, on farm management, and on equipment related to farm production, processing, and marketing. Some of its research would be conducted at national and regional research stations; some of it in connection with commodity production programs and farming-district projects; and some of it as a component of university programs, supported by grants from the ministry.

A *division of production inputs* would take such public action as is needed to ensure that wholesale supplies of fertilizers, seeds, pesticides, and farm equipment are adequate, whether by importation or by domestic manufacture. It would monitor inventories and consumption of various inputs, district by district. And it would estimate demand for each input over the next year or two. Based on this information, the division would take steps to keep the supply of each input in line with demand.

A *division of rural services* would be responsible for creating and improving rural agricultural support services—retail outlets for farm inputs, collection points for marketing farm products, extension services, farm credit, and farm-to-market roads—and seeing that they operate efficiently.

Why should all these services be grouped together in a single division of the ministry? Because there are high complementarities among them. It is wasteful to give attention to one without giving attention to all of the others. Each could be handled by a separate bureau within the division, but all should be the responsibility of one division chief to ensure due attention to all complementarities.

The primary tasks of a *division of production incentives* would be to keep abreast of what is happening to farmers' incentives, region by region, to analyze the probable impact of changes that might be made in them, and to recommend beneficial changes.

A ministry of agriculture cannot, by itself, institute price policies or subsidies that affect agriculture directly. It cannot, alone, control tax and monetary policies that have effects far beyond agriculture. Nor can it alter land tenure policies unilaterally. Nevertheless every ministry of agriculture needs a division of production incentives to keep the minister informed about the current situation, to propose policy modifications and useful public programs, and to administer related programs that may be undertaken.

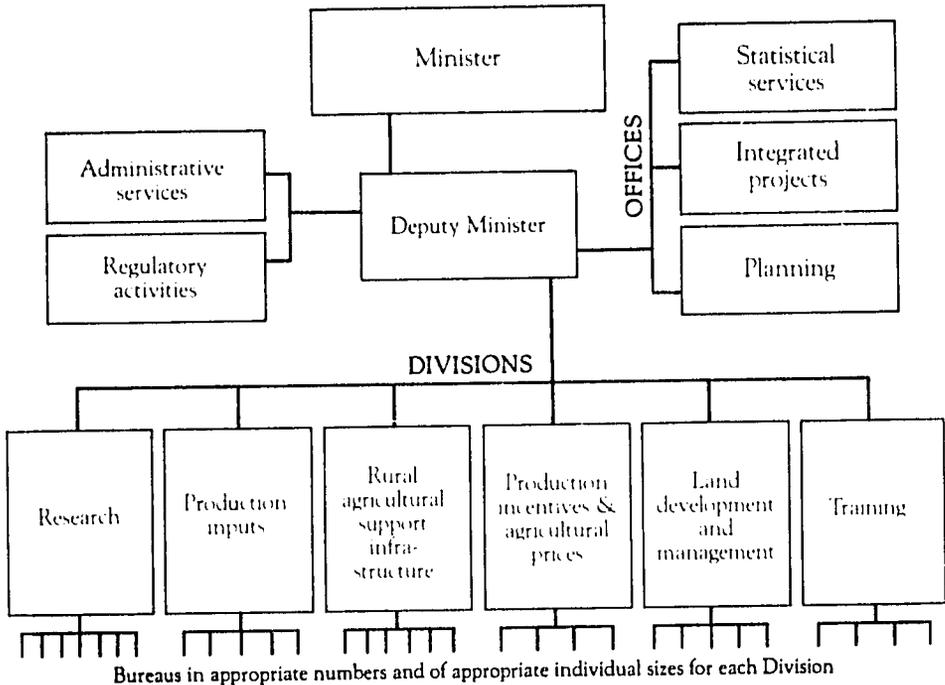
A *division of land development* would be responsible for ministry activities related to irrigation, drainage, land clearing and leveling, field consolidation, and soil conservation. Sometimes, however, irrigation works are under a separate ministry. If they are, the agriculture ministry's division of land development should nevertheless be in a position to ensure that adequate attention is given to agronomic considerations in the design and operation of all land development projects. It should also comment on priorities among such projects in different parts of the country.

A *division of training* would address the problem of increasing the numbers and improving the capabilities of professional workers in all public or private agricultural support activities. To do that, the division should be concerned about the programs of agricultural schools and colleges, whether or not they are administered by the ministry of agriculture. It should keep reviewing the training programs of all agencies in the ministry. And it should produce, and act as a clearinghouse for, teaching materials that can be used in training courses related to all agricultural support activities.

Three Special Offices

In addition to those six major divisions, a ministry of agriculture needs three special offices. One would be an *office of statistical services*.

Outline of Suggested Organization MINISTRY OF AGRICULTURE



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Agricultural statistics are a fundamental tool for decision making in the ministry. They can be improved in two ways. First, a vigorous analysis can be made to determine what statistics are really needed. Second, data that are being collected merely because they have been in the past, but that are not actually useful, should be eliminated.

For accelerating agricultural growth, the important data are general agricultural production statistics and specialized statistics needed in administering each agricultural agency. Although most specialized statistics are best collected by the divisions that need them, all of the agricultural production statistics—and some of the specialized statistics—can most effectively be collected, analyzed, and published by an office of statistical services.

Another special office that every ministry of agriculture needs is an *office of integrated projects*. Its task is to achieve collaboration in projects in which more than one agency of the ministry ought to be involved.

Projects like commodity production programs and farming-district projects need considerable autonomy to facilitate experimentation and to achieve collaboration among different agricultural support activities. Because regular agencies of the ministry of agriculture are not accustomed to collaborating with each other, independent agencies—each with its own staff of research, extension, credit, irrigation, and other types of specialized personnel—are frequently created to administer such projects. That, in turn, deprives regular agricultural agencies of the opportunity to participate in the most productive and exciting activities to promote agricultural growth. In addition, the independent nature of special projects leaves them without an established place in the normal budgeting process.

An *office of integrated projects* can deal with these problems. It can encourage participation in integrated projects by the regular agricultural agencies. It can ensure a balance between project autonomy and responsibility to an established agency within the ministry. And it can provide a channel for including special projects in the overall budgeting process. There could still be a national advisory board for each type of project, but the chief administrator of each project would be a member of the office of integrated projects.

A third special office would manage agricultural planning. Improving planning procedures is discussed below, but in order to carry out those procedures every ministry of agriculture requires an *office of planning*.

4. IMPROVING AGRICULTURAL PLANNING

In some countries, agricultural planning is little more than a statement of general objectives and an allocation of funds with little specification of how the objectives are to be achieved. In others, it consists primarily of developing budgets for public agricultural agencies. But the allocation of

funds is only one aspect of effective planning and it is not the most important one. Planning should embrace, in considerable detail, *what* is to be done in each farming district, *who* is to do it, and *how* it is to be done within a specific time period, with *how much* of each is to be done being determined by available financial resources and technical manpower.

To be effective, planning for agriculture must have a broader outlook than just the activities of the ministry of agriculture because some important activities that affect agricultural growth are conducted by other ministries. Moreover, even within the ministry of agriculture, planning must embrace more than just planning for agricultural growth because some of what the ministry does is really part of the agricultural production process—market regulation, seed certification, plant protection, etc.

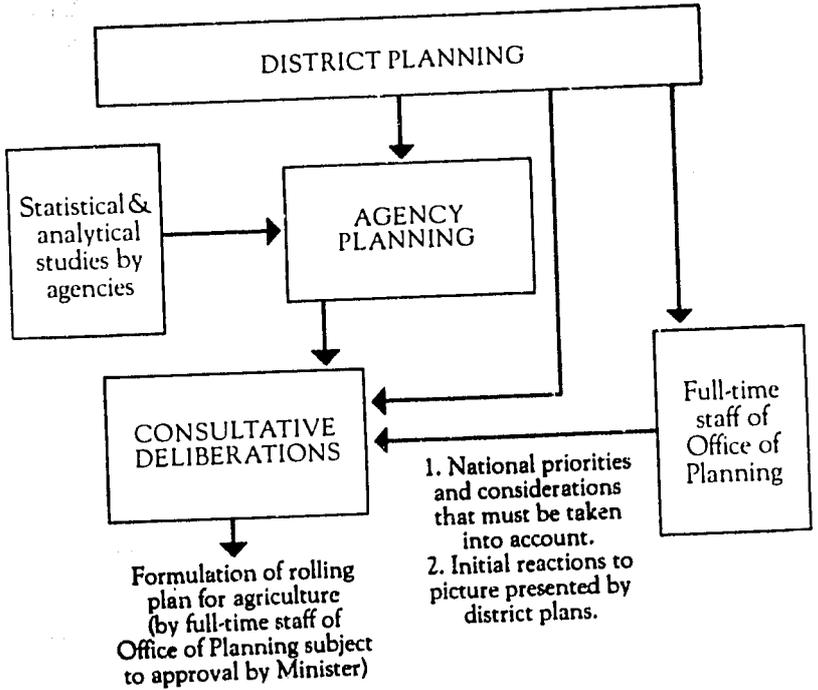
What kind of planning, then, is appropriate?

Clearly, a plan for each farming district is essential if the aim is to build on the varied resources and most urgent needs of each part of the country. The development of district plans can start from the current priority needs in each district. However, since the aggregate needs of all districts will probably exceed available finances and technical manpower, district plans have to be adjusted to be compatible with those limitations.

Next, since each activity provided for in a plan has to be implemented by a particular agency, all divisions and bureaus of the ministry of agriculture and representatives of other agencies whose activities affect agricultural growth should be involved in planning. Each agency should indicate how much of what districts want or need it is feasible for the agency to provide within the next time period. In making that judgment, some agencies will have to consider the cost and manpower requirements for what they must do as part of the production process, as well as what they can do to accelerate agricultural growth.

Third, national priorities that involve broader considerations than just agricultural growth must be taken into account. Bringing these into the planning process should be part of the responsibility of the ministry's office of planning.

A PLANNING PROCESS FOR AGRICULTURE



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A planning process (see diagram) that honors the foregoing considerations is as follows:

1. It starts with the preparation in each farming district of a preliminary plan that takes into account the distinctive needs of the areas of immediate and future growth potential within its boundaries.
2. Next, each of the six divisions of the ministry would calculate how near it could come to meeting the total needs expressed in the preliminary district plans, estimate the cost involved, and give its judgment as to priorities among the districts' stated needs.
3. Simultaneously, the office of planning would aggregate all preliminary district plans to determine how the financial

costs of the proposals for each district compare with those of other districts. (Steps 2 and 3 would both start from the same totals of requests from all farming districts, but the criteria applied in passing judgment on them would differ. In step 2, each agency would estimate how much of what the various farming districts want would be physically feasible for the various agencies to accomplish. In step 3 the office of planning would compare the aggregate cost of the activities proposed for each district, judging whether that constitutes a fair division of development resources among districts.)

With those steps completed, a final plan for agriculture would be formulated through *consultative deliberation* in sessions presided over by the minister of agriculture. The deliberating group would consist of full-time staff members of the office of planning, the heads of the divisions of the ministry and of its office of integrated projects, 6 to 12 regional representatives of the interests of districts, and representatives of other ministries having related responsibilities. The task of this group would be to propose modifications to bring the plan into line with technical feasibility, countrywide objectives and strategies, and financial resources.

Participants in these deliberations would receive a draft prepared by the fulltime members of the office of planning as well as the preliminary proposals from each district and from divisions and bureaus of the ministry, which the office of planning used in making its consolidated draft. After completion of the deliberations, final decisions would be made by the minister of agriculture assisted by the head of the office of planning and his staff.

5. ADOPTING MORE EFFICIENT OPERATING PROCEDURES

Like organizational patterns, many operating procedures and patterns of administration have been inherited from an earlier era when circumstances changed very slowly. Those procedures are not appropriate for development activities, where rapid change is both an objective and a prevailing

condition. It is difficult to institute new procedures, but they must be modernized if public agricultural programs are to facilitate rapid agricultural growth.

Many types of changes are needed. The essential and strategic administrative tasks, listed earlier, suggest some. Other needed changes involve routine operating procedures:

- Procedures for keeping scientific instruments, other working equipment, and vehicles in good repair are highly important, as are those for authorizing staff travel and for procuring new equipment and supplies. Facilitating movement between offices, laboratories, farming districts, farming localities, and individual farms is particularly critical in activities related to agriculture.
- Fiscal policies usually need to be revised to give administrators of divisions and bureaus more authority to reallocate budgeted funds among line items and to incur unbudgeted expenditures to meet unanticipated events promptly. A discretionary fund for each agency, even if not large, can be helpful.
- Communications need to be speeded up between each headquarters' office and its field operations.
- Transactions between the ministry of agriculture, the ministry of finance, and the central planning agency often deserve streamlining.
- Reporting requirements usually should be simplified and they almost always need to be revised to encourage "upward communication" so that administrators have the benefit of suggestions from subordinate members of each staff.
- Changes in the form of annual budgets often are desirable so that expenditures related to individual projects and programs can be clearly identified.
- Procedures for personnel recruitment, remuneration, and promotion often warrant modification in order to attract and retain competent personnel and to facilitate moving the better young staff members into positions of greater responsibility.

These suggestions are merely illustrative. They cannot be more because situations differ from country to country and the remedial steps that are feasible in each country differ too. Yet next to making arrangements for professional staff growth

and providing incentives for improved staff performance, developing more efficient operating procedures can probably do more to improve the performance of regular agricultural agencies than any other single change.

6. USING APPROPRIATE STYLES OF ADMINISTRATION

Finally, the performance of agricultural agencies can frequently be improved by encouraging new styles of administration—styles that rely more on leadership and less on authority.

The colonial style of administration is based almost entirely on authority. Rules and regulations specify tasks and, within those rules and regulations, administrators make decisions and tell their subordinates what to do. It is assumed that administrators know best. By contrast, development administration requires continuous adaptation to new situations, with the staff learning while doing. In fact, the staff learns as much, if not more, from experience as from administrators. Consequently, a good development administrator fosters this process so that what he is learning and what members of his staff are learning on the job quickly become incorporated in the way the agency operates.

At the same time, a good development administrator continually makes sure that his staff members have everything they need to do their jobs well. In other words, he is a facilitator. In a project in India the top administrator was given the title *Sathi-Intizam*, which means "the companion for arrangements." He had authority but he used it sparingly. He participated in a semimonthly staff conference in which program decisions were made, then his role became that of a facilitator. Under those circumstances there was no feeling of administrator versus staff; rather, there was a comradeship in which each had mutually supporting responsibilities.

An administrator must have authority, but the critical question is how to use it. It is always productive to try to accomplish so much by *leadership* that wielding authority is seldom necessary.

MOVING TOWARD THE MODEL: TOTAL COMMITMENT & GRADUAL IMPLEMENTATION

This third activity—improving the efficiency of regular agricultural agencies—has great potential for accelerating agricultural growth in ways that neither commodity production programs nor farming-district projects can.

Some of the instrumental means suggested above are relatively easy to implement; others are difficult. But the payoff from employing all of them can be very great.

Giving major attention to professional staff growth can be started at once, without waiting for other changes to be made.

A start can be made on providing incentives for more efficient staff performance by seeing that each staff member has the equipment and supplies he needs, that field workers have means for getting to all parts of their territories, that superior officers visit field workers often, and that staff conferences are held frequently to give all members of the staff a feeling of participation. It is more difficult to raise financial incentives, but it has been done in several countries and efforts to achieve it should not be delayed.

The establishment of appropriate styles of administration for each agricultural agency can proceed without waiting for other improvements to be implemented.

New internal operating procedures for agricultural agencies or the ministry of agriculture can be launched promptly. Procedures that involve other ministries are more difficult to modify, but attempts should not be long postponed.

Efforts to establish more appropriate agricultural planning can start with the kind of district planning that is needed and by drawing farmers and representatives of agricultural agencies into the planning process.

Changes in organization, especially those that involve a reassignment of responsibilities among ministries, are perhaps the most difficult to accomplish. They depend heavily on the political skills of the minister of agriculture. Opportunities to make needed changes sometimes arise at unexpected times and the minister should be ready to seize the occasion.

Consequently, *total commitment* to improving regular agricultural agencies, and *gradual implementation* of the various steps to be taken lie at the heart of successful application of this approach.

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