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REPORT ON RURAL DEVELOPMENT ISSUES IN ETHIOPIA - PROBLEMS AND
PRESCRIPTIONS WITH SPECIAL REFERENCE TO EPID AND THE ADA PROJECT

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I. Introduction

This report presents observations and policy judgements under three headings. First, brief consideration is given to the currently basic national policy constraints to rural development. Without appropriate decisions and implementation of decisions in these areas rural development programs at the local level cannot be effective. Second, the chosen strategy of rural development in Ethiopia is discussed with emphasis on the relatively extensive types of programs which offer the only potential of rapidly reaching a large proportion of the nation's rural people. In this discussion an indication is given of the need for priorities in allocation of personnel and finances and what the current priorities should be. Third, the role of the various intensive projects generally and of the ADA Project specifically is discussed within the context of the extensive approach to rural development. Specific recommendations are made to emphasize the complementarity of the intensive programs with the extensive program and to minimize the innate conflict arising from their different philosophy. Fourth, a specific set of recommendations is presented for the ADA project.

The two weeks spent on this specific trip to Ethiopia was of course for this purpose exceedingly brief. However, the effort related closely to a previous visit to CADU and minimum package projects in Ethiopia which provided an enlarged perspective. Prior to coming to Ethiopia, I read a large volume of material dealing with the nation, its development programs, various policy issues and the rural development schemes, particularly CADU, WADU, ADA and the Minimum Package Program. I am particularly grateful to have been able to draw upon the comparative analysis of these and other African Rural Development projects being completed by Dr. Uma J. Lele of the World Bank. The classifications used in this report and a substantial proportion of the underlying philosophy of rural development draws heavily on her work.

Prior to visiting Ethiopia, I also had extended discussions with a number of people in the World Bank and USAID in Washington and with various persons concerned with land tenure and land reform questions at FAO and the Inter-American Development Bank.

While in Ethiopia I carried on a wide range of discussions with personnel in EPID, various other elements of the Ministry of Agriculture, the Agricultural and Industrial Development Bank, the Planning Commission, CADU, representatives of USAID, the World Bank and UNDP. In addition, I made a field visit to ADA on which I was able to meet with the bulk of the staff at ADA, with several of the staff at the Experiment Station at Debra Zeit, and perhaps most important to talk to a substantial number of owner-farmers, tenant farmers, grain traders and officials. In

addition, I met with staff and made field visits at the Minimum Package Programs in Nazreth and Mojo. While at ADA, I visited a weekly market in the village of Dire, examined grain and fertilizer storage and distribution points and traveled one of the roads currently under construction in the district program and interviewed workers and organizers on that project. Ato Haileleul Getahun, director of the ADA project, gave me a large amount of his time and perspective, which was of inestimable help.

My task was immensely facilitated by the very substantial report on the ADA project, its history, its present status and its plans for the future, prepared by the ADA staff. It was a carefully developed and most informative document. Similarly, the opportunity to look at the EPID Phase II report was exceedingly helpful. While stating how heavily I have drawn on these reports, it sets the perspective for the rest of this report to point out that in the bases of both reports the critical unsolved problem was that of going from the large catalog of further future activities to a setting of priorities and time phasing for the production of those activities. It is my supposition that those priorities have not been set because of the difficulty of setting them given the present paucity of knowledge and variability of conditions. In my view, both of the reports are similar in giving insufficient attention to the prosaic task of improving the effectiveness with which present programs are operated. That is not to say that these programs are now ineffective, but rather to say that they must evolve over time, that the basis is being generated for learning how to improve them and that that basis should be taken advantage of. That observation underlies much of what I say in this report.

Thus, this report brings an outside perspective to bear on problems of rural development in Ethiopia on the basis of a brief, but intensive observation of the current situation in Ethiopia. It also provides a benchmark and statement of initial investment in informing myself on rural development in Ethiopia as a basis for a series of visits which should provide a dynamic to what can now be no more than a statement of comparative statics.

II. The National Policy Constraints

Rural development is of course a micro-process directly dependent on positive decisions by myriad small farmers. Successful rural development programs must reach those small farmers with effective technology and institutions for servicing that technology and organizing farmers for defining and meeting their various welfare needs. It is thus the rural development programs such as the Minimum Package, CADU, WADU, and ADA which must initiate provision of the necessary institutions to service farmers at the micro level and hence are the direct fomenters of rural development. However, whether they succeed in that role depends not only on how they are constructed, but also on the broad macro-framework of national policy within which they operate. There are a large number of policy elements at the national level which must be dealt with satisfactorily

if micro-policy is to be successful. I have chosen to place emphasis by classifying these policy needs under five headings; (A) Land-tenure; (B) Price Policy, (C) Generation of a Stream of Profitable Technology, (D) Expansion of Trained Manpower and (E) Generation and Allocation of National Financial Resources Appropriate to Rural Development. The listing, and to some extent the discussion, may seem innocuous. However, what is presented is in essence a clear set of policy priorities. The argument is not simply that these policies need to be pursued but that they deserve a special priority perhaps to the exclusion of most other rural development efforts.

A. Land-Tenure

Essentially all analyses of rural development in Ethiopia emphasize the importance of the land-tenure issue. Because it has been so thoroughly covered in the past, I largely limit comment to elements which are of considerable importance to economic policy and rural development programs and yet which have received only slight emphasis in other reports. In doing so I, of course, do not infer disagreement that the basic driving force for land-tenure change arises from considerations of equity, the sources of political power and the division of that political power. Nor do I disagree that the existing tenure system reduces the direct incentives for production increasing technological change which is so necessary to much of the rest of Ethiopian development. There is, however, considerable scope for improvement of the direct economic incentives, for example through improved leases which specify sharing in input costs in proportion to sharing of output, but which still do not meet the basic development problems stated below.

1. Restraint on Multiplier Effects

One of the most important potential stimuli of rural development on total economic development arises from the multiplier effects incident to the linkage between rising incomes in the rural sector and stimulation of demand for output from other sectors of the economy.^{1/} As a proportion of total increase in expenditure from rural development the purchase of consumer goods is considerably more important than the purchase of production goods. However to be effective, these growth linkages must be based upon expenditure patterns for rural people which have a high domestic employment content. They then serve to mobilize the relatively abundant labor resource and spread limited capital supplies thinly over the labor supply. Similarly, for a nation such as Ethiopia such industries are likely to offer attractive

^{1/}

For a full statement of these linkages, see John W. Mellor and Uma J. Lele "Growth Linkages of the New Foodgrain Technologies," Indian Journal of Economics, Vol. XXVIII, No. 1, Jan.-Mar. 1973.

import displacement, and eventually, export potentials. Thus, the composition of expenditure patterns from rising rural incomes are important and those in turn depend very much on the pattern of income distribution. A land ownership pattern which provides a high proportion of increments to income from rural development to high income people whose demand for goods is highly capital intensive and has a high import content provides major leakages from these linkage effects. The result is not only small growth stimuli to other sectors of the economy, but because of the lack of participation of the laboring classes in that growth there is also a retardation in the growth of the demand for the very food products which are being produced in the agricultural sector. Thus, agricultural production itself may be seriously impeded by inadequate price and income incentives.^{2/} The present land tenure system in Ethiopia is inimicable to these growth linkages and until that system changes the returns in overall economic growth to investment in the rural sector are greatly reduced perhaps even to the point of questioning the efficacy of such investment.

2. Inefficiency of Rural Development Programs

A highly skewed distribution of land ownership introduces a major inefficiency to rural development programs. This inefficiency becomes particularly marked where one has a mixture of small-owner and tenants on the one hand and large contract farmers or single owner, operated mechanized farms, on the other - a pattern to which Ethiopia could quickly move as new technology increases the profitability of land ownership and modern management. Rural development institutions of the type being instituted in the Minimum Package Program are well suited to the small owner-operator and, at least under some conditions, to the tenant farmer. They are not intended and probably could not efficiently serve the needs of the large farmer. The area related overheads for such a set of institutions for rural development are, however, very substantial. It is much more economic to carry those overheads when a high proportion of the cropland in a Package unit can be covered by such types of programs; a coverage which becomes impossible when there is a sharp division of land ownership and operating units between a small number of very large units and a large number of very small units. Thus, as the Minimum Package Program expands and its total cost thereby increases, it may come increasingly under question on the basis of losses in efficiency tracing from the land tenure system.

3. Social Policy Limitation on Mechanization

As major technological change occurs in agriculture, as yields increase greatly and in some cases as double cropping and other methods of increasing cropping intensity increase, powerful arguments arise for limited types of

^{2/}

Ibid

mechanization to break restrictive labor bottlenecks. In an area of consistently small, owner-operated farms selective mechanization of bottleneck operations tends to occur relatively naturally and to provide increased incomes to the bulk of the small farmers. In a situation in which much of the land is in very large holdings mechanization may be used not only for breaking overall labor bottlenecks, but for shifting from a system of tenant farming to one of large owner-operator units or contract farming and consequent massive eviction of tenants and displacement of laborers. Because of this danger, it is questionable whether even the most rudimentary effort should be made at experimenting with mechanization potentials as long as the current tenure system prevails. Thus the existing land-tenure system makes it difficult to experiment and develop systems of mechanization which may be useful and effective in the small farm system. Insofar as genuine, seasonal labor bottlenecks arise, as they well may, the total progress of production increasing technology may be impeded.

4. Interaction With Technology in Exacerbating Inequality

Finally it should be recognized that the very acts of increasing rural incomes through new agricultural technology, which are so desirable from the point of view of the rural poor under a situation of broad distribution of land ownership, may under a system of highly concentrated land ownership exacerbate existing social and economic problems of the poor by not only encouraging eviction and contract farming, but by increasing the concentration of power and wealth in the hands of the landowning classes and increasing the vested interest and power to sustain the existing landownership pattern. The result may be to turn a potentially desirable green revolution of a production increasing type into one of increasing social tensions. Thus a highly skewed land distribution may raise questions not only about the efficacy of mechanization policy, but even about the total process of income raising technological change in agriculture.

B. Price Policy

The other policy areas discussed in this section require direct positive action. In the case of price policy the concern is more to avoid error of excessive action.

The relationship between prices which farmers receive and prices which they pay is one of the most important determinants of the incentive to produce and to accept new technology. Agricultural price policy would thus appear to be an important area of national policy action. However two important caveats are in order. First, it must be remembered that the other major determinant of farmers' incentives is the physical input-output relationships which it is the purpose of new technologies to improve. In other words, one side of the incentive coin is the set of prices which the farmers receive, the other side is the cost of production. New agricultural technology is intended to reduce the cost of production and thus adds to net national income, rather than primarily transferring income between consumers and producers.

1. Food Crop Price Relationships

Food crops dominate the production and consumption patterns of Ethiopia and must represent the centerpiece of efforts at broad participation in economic growth. However, price determination is extremely complex offering distinct danger that national price action policies, in ignorance, may do more harm than good. Thus this section counsels caution in any policy efforts in this area and emphasizes elimination of existing distortions and imperfections rather than more overt action.

At the national policy level monitoring is required of the relative prices of food crops as compared to other crops and with the relationship of domestic prices to international prices. The two sets of relationships are interrelated. International price relationships may well reflect an underlying set of supply and demand relationships and input-output relationships which are necessary to adequate incentives to farmers. If, for domestic policy reasons, the domestic price of food is kept below the international price there are likely to be depressing effects on use of purchased inputs. In this context it is quite possible that export crops will command essentially the international price while food crops are relatively depressed. It should be clear that this not only militates against acceptance of the new food crop technologies, which have such a large potential for widespread increase in farmers' incomes, but may, by delaying diffusion of new technology, in the longer run cause domestic food prices to be somewhat higher than would otherwise have been the case, to the detriment of the urban consumer.

2. Price Fluctuations and Market Imperfections

It is clear that Ethiopian farmers are subject to large year-to-year fluctuations in prices which they receive for their food crop output; a highly erratic pattern of seasonal increases, which contributes to the overall year-to-year price instability; and larger inter-market price differentials than we find in many other low income countries. There are three potential explanatory influences.

First, the infrastructure of transportation, communication and information is particularly weak in Ethiopia. At the simplest level, this means high transport costs from one market to another and hence the opportunity for the prices in the various markets to get further out of line with each other than would occur in a situation with a more highly developed infrastructure. Similarly, lack of market information leads to erroneous stocking policies, with consequent fluctuations in prices when stocking errors are corrected. It may well be that under these circumstances the highest priority means of improving the marketing system is to make massive expenditures on improvement of road communications and the market information infrastructure.

Second, the proportion of total production which is marketed is very small and the fluctuations in total production relative to those marketings is very large. It would not be surprising under these circumstances to find that the percentage changes in marketings were much larger than the percentage changes in production. If, through public policy and economic forces, the urban demand is relatively inelastic, one then has the ingredients for very large fluctuations in prices from one year to another. These same forces are likely to lead to erratic seasonal price fluctuations. It will be costly to reduce these fluctuations in the face of the stated set of relationships.

Third, and interacting with the other two factors, is the possibility of lack of competition and collusion within the private trade. This would result in wide marketing margins and hence lower price to farmers and higher price to consumers than would otherwise be the case. It would possibly also result in speculative manipulation of the market and hence erratic seasonal price fluctuations and increased fluctuations in prices from one year to another. However, the bulk of the evidence seems contrary to this position leaving the bulk of explanation of erratic price behavior on the first two factors.

A substantial number of studies in countries with very similar conditions to those of Ethiopia have consistently shown that the private trade is subject to relatively easy entry at almost all levels but particularly at the lower levels and may indeed be entered by relatively low income farming classes themselves.^{1/} It has also been found in other countries with conditions similar to those of Ethiopia, that marketing margins are relatively low given the costs which arise from the nature of the infrastructure and informational systems; and further that storage losses are relatively low on the farm and in private commercial channels, although they are quite often high in badly managed public storage. The information from Ethiopia on these points is somewhat mixed. A number of studies, particularly that by Manig, reach conclusions consistent with the studies done in other countries. Nevertheless, there is a widespread impression in Ethiopia of lack of competitiveness in the private trade.

These issues and the measures to be taken with respect to price policy are important from the point of view of rural development programs. A massive intrusion into the marketing system will be expensive with respect to financial and physical resources and particularly with respect to personnel. It is a step which may be necessary if markets are indeed operated collusively and inefficiently in their current context, but a step which would interfere with other important aspects of rural development if those assumptions are not correct. As will be emphasized below, probably the most crucial allocative question with respect to rural development is the one of trained manpower. The effects of major intrusion of the government into the agricultural marketing system must be compared with the effects of allocation of the personal and institution building capabilities into direct production increasing activities.

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See for example, Food Grain Marketing in India: Private Performance and Public Policy by Uma J. Lele, Cornell University Press, 1971.

3. Conflicting Objectives - Urban versus Rural

Finally it should be recognized that there are two often conflicting concerns with respect to agricultural prices and marketings. On the one hand, there is the need to ensure food supplies to the politically effective urban population. On the other hand, there is the desire to provide a stable and remunerative price to the farmer. A confusion of the two objectives is likely to lead to expensive and inappropriate policies. My tentative conclusion is that the two objectives should be dealt with with somewhat different policies.

With respect to ensuring urban food supplies it seems desirable to have a significant quantity of storage in government hands in major urban centers. It is, however, difficult to estimate how large an optimal requirement would be. Perhaps a minimum figure would be sufficient when combined with imports to give the government control of 20 to 30 percent of the quantity normally consumed in the urban centers. The larger the imports, the smaller the storage capacity would need to be. Given storage of this order of magnitude, the next order of priority in this context would be operating that storage and the resultant portion of the marketing system in an efficient and effective manner. That alone is likely to be a highly demanding task not well fulfilled in the relatively short run.

At the farm level it would seem desirable to make a small and tentative intrusion into the market in such a manner that farmers play a major role in determining the size and direction of that intrusion and absorb a substantial proportion of the risk and costs involved. One possible way of proceeding would be to construct modest storage facilities at the individual village markets in order to provide the farmer, particularly those coming from some distance, an alternative to immediate sale. The most tentative beginning would be to simply offer the farmer the storage space for a fee. The next step might be to offer him a loan in cash against the quantity stored. Farmers who wish to use such a facility might be organized into a cooperative and use that institutional structure to provide a basis for making and executing decisions as to how they would most like to proceed with respect to cooperative organization of markets. Such an approach would undoubtedly proceed slowly but quite possibly effectively.

Because of its importance, in the statement on prices it should be reiterated that the first priority in improving the farm price in a country such as Ethiopia must necessarily lie with massive improvement in the transportation system.

C. Generating a New Stream of Profitable Technology

I give special emphasis to policy attention to expanding and improving agricultural production research because of (a) its key role in rural development, (b) the basically solid core structure of research institutions already available and (c) my judgement that Ethiopia will very soon face problems in its rural development efforts if the research effort does not receive additional attention and support.

Because of the phenomenon of diminishing returns arising from relatively fixed land area, the frontier of agricultural production necessarily lies with development of new high yielding agricultural technologies which reduce the costs of production. Ethiopia has been fortunate that a relatively simple package is currently available with apparently widespread applicability. That package is, in essence, application of modern chemical fertilizers to existing crop varieties. In some areas, particularly those growing wheat, there have been improved varieties introduced largely from outside the country. However, the objectives of rural development require a dynamic process of accelerating the rate of growth in production, not an essentially static process of a single shift from one plateau of production to another. For this dynamic process to occur there must be a widespread agricultural research system developing innovations with respect to varieties, agronomic practices, pest control, weed control and other matters designed to suit the highly varied conditions from one end of the country to the other.

1. Need for an Expanded Research System

Thus, one of the most important requisites of rural development is development of complex integrated agricultural research systems. It is my impression that the basis for that system is clearly established in Ethiopia, with several stations located in various ecological regions within the country. It is also my impression that there is not at the moment a clear set of new, major yield increasing technologies in the offing. It is also my impression that considerable expenditure could be made for further improvement of the physical conditions of the various research stations and for increased staffing of those stations with both national and expatriate personnel. Thus it appears to me that the institutional structure is being built on a sound basis but that there is a great deal more work to be done. I place particular emphasis here because I sense an optimism with respect to the technologies currently available and in the offing which is not fully justified and I envisage a clear possibility for the institutional structure of rural development being well built except for the lack of technology to purvey.

The existing package for technological improvement in agriculture and of course continues to give production increases as its geographic coverage continues to broaden. There is a very substantial remaining potential in this respect. However, each successive package unit is likely to soon face a technology bottleneck to further improvement which will be debilitating to staff morale. Even now it is becoming clear that fertilizer recommendations are not sufficiently specific to local soil conditions, that fertilizer responsive varieties do not exist for many areas and that effective methods of pest control are not available for many situations.

2. Emphasis on Food Crops

The first priority for the experiment station system must remain with the basic food crops. It seems difficult to believe that the rate of technological progress in Ethiopia with respect to the food crops could be sufficiently rapid to supply surpluses of basic food crops in a context of rising population and as long as the relatively low income people participate in the growth process through increasing employment. The latter of course provides rapid increase in the demand for basic food crops as a high proportion of the increased incomes of the poor are spent on these basic food crops.

An impression of potential over-production of food crops may occur if rural development programs are concentrated in a few geographic areas. A substantial percentage increase in production in those limited areas and if those areas are not in the context of poor transportation, could depress prices locally. That same absolute increase in production spread more widely would not depress prices. The present Ethiopian strategy of attempting broad regional participation in growth through the Minimum Package Program will tend to give modest increases in food production diffused broadly over the country.

Finally it should be clear that improvement in the experiment station system is particularly well suited to effective use of foreign aid and expatriate manpower used as a complement to national financial and manpower resources.

D. Expansion of Trained Manpower

The rural development programs already planned require a massive increase in the supply of trained manpower if the requisite institutions are to achieve nationwide coverage and are to operate effectively. Further, rural development is a process of constant increase in the intensity of coverage of institutions and hence of trained manpower. Thus growth in manpower demands will be very large for a long time to come, not just from the increased coverage of existing programs, but also from expansion of those programs and increase in their intensity.

There are two means of dealing with these massive manpower requirements. One is to maximize the extent to which local farmers' organizations and local government provide a basis for the use of local experience and intuitive knowledge in setting of priorities and the running of programs. As long as formally trained manpower is scarce it is essential that farmers and other rural people be effectively organized for rural development activities.

The other means of providing trained manpower is through the formal educational institutions, and specifically through the two agricultural institutes whose equivalent must undoubtedly be expanded substantially. In addition, it seems likely that the demand for the type of graduate from

the agricultural college at Allempaya will increase substantially over time. Thus expansion of such institutions and continued increase in their quality is one of the most necessary conditions for rural development and one which requires a high national priority.

As for research, it is my judgement that although there is general recognition of the importance of education it is not receiving the priority in national and donor agencies it deserves. Again, this is an element of the rural development construct particularly subject to foreign technical assistance.

E. Generation and Allocation of National Financial Resources Appropriate to Rural Development

Rural development on the nationwide scale necessary for a major aggregate impact on the levels of living of the mass of rural people requires a massive quantity of resources. Such rural development cannot occur unless national policy places a high priority on rural development. I have already commented on the importance of allocation of resources to agricultural research and training of agricultural manpower. I wish to indicate two further areas of national priority for which the emphasis is somewhat less on institutions and somewhat more on physical and financial resources.

1. Fertilizer

It is essential to the success of rural development programs that ample supplies of fertilizer be made available. Even in the best of times the allocation of foreign exchange and of domestic resources for this purpose would be very large. It appears that there will be a substantial world fertilizer shortage for at least the next three years and quite probably for somewhat longer than that. There has also been a very large increase in the price of fertilizer. These events pose an immense problem.

The cornerstone for the Minimum Package Program is distribution of fertilizer. Fertilizer is at past price relationships highly profitable to farmers. It is likely, particularly given the relatively large increases in crop output prices which have occurred and which undoubtedly must continue to occur, feasible for farmers to absorb a substantial increase in the price of fertilizer, perhaps on the order of a 25 to 50 percent increase, and still maintain profitability of fertilizer use. Nevertheless, it is quite likely that the level of subsidy on fertilizers will have to increase in absolute terms in the near term in order to ease the transition from a period of low fertilizer prices to high fertilizer prices. An excessively large jump in the price of fertilizer and even worse, a lack of availability of supplies would not only prejudice continuing expansion, but would prejudice existing rural development programs. The problem is not just loss of farmer confidence, but far more important, the confidence of the personnel manning the new institutions may also be lost.

Thus, expenditure on fertilizer may at the present time be looked upon as a major capital expenditure necessary for preserving and even expanding the existing institutional structure for longer term effective and profitable rural development. This problem is particularly serious for Ethiopia where the structure for rural development has been built very recently but still very effectively. Potential losses from the decline of that structure are hence particularly large.

In view of the scarcity of fertilizer it may be necessary to reduce the rate of expansion of the Minimum Package Program somewhat. But a substantial case can be developed for a special priority to Ethiopia in obtaining a small portion of the world's limited fertilizer supplies. Success in this respect may require a clear understanding of the policy priorities by the Ethiopian government and a clear understanding of the situation and action by the major multi-lateral and bi-lateral aid agencies.

2. Roads

Rural development in Ethiopia requires massive expenditure on roads. It seems clear that much of the problem in the marketing system is due to lack of transportation infrastructure. It is also clear that the Minimum Package Program, which is the basic, chosen instrument of rural development in Ethiopia, will be able to reach only a very small proportion of total population unless a massive road building program is effectively pursued. Thus, not only are roads crucial to food production objectives, but they are even more basic to the objective of reaching the bulk of rural people through rural development programs.

As will be emphasized in discussion of rural development programs, there are probably two important aspects to a massive expansion of roads. On the one hand, there must be major allocations of national government resources to road building. This is partly because of the specific nature of the required resources. The optimum system for building roads undoubtedly requires a certain amount of imported machinery. It is also because mobilizing rural people to generate their own resources probably requires national matching funds if the process is to proceed rapidly. The massiveness of the financial and physical requirements is a product of the massive road requirements given the current state of development. It will require both a high priority in allocation of existing resources and to raising additional resources.

3. Tapping Rural Resources for Rural Infrastructure

The quantity of resources now available at the national government level and the demands already upon them probably make it impossible for a full national program of road building to be adequately carried out without tapping existing rural resources and perhaps even more important, the additional rural resources arising from the very processes of rural development themselves. It seems likely from experience elsewhere that

to tap such rural resources will require organization of rural people for making decisions for expenditure of those resources in the local area. Thus, resource raising itself requires local organization. In addition, scarcity of trained manpower requires organizing rural people for many aspects of execution of projects as well as for their financing.

In time the processes of rural development will proceed to the point at which it becomes economic and socially necessary to provide substantial social services such as improved water supplies, schools, public health facilities, and so on. Again, it is likely that national resources will be required for matching grants and for the provision of some of the physical resources not available at the local level. As in the case of road building however, the total requirement of resources will probably be such that they cannot be provided on a national basis unless there is local organization for raising local resources. Also, as in the case of roads, local know-how will probably be necessary for effective expenditure of funds for these types of purposes.

Thus a priority policy for rural development is one for fostering local organization for raising, allocating and administering local resources for rural development.

III. Ethiopia's Strategy of Rural Development

A. The Philosophy

The implicit philosophy in Ethiopia's chosen strategy of rural development is to provide broad coverage of the geographic regions of the country and inclusion of the mass of people within each of those regions. Because of the lack of institutional organization, scarcity of trained manpower for those institutions, and inadequacy of technical knowledge as to how to proceed with rural development, the objective of breadth of coverage requires that the intensity of coverage be held at a low level. Hence, the term Minimum Package Program. The term is, however, in one sense probably a misnomer. The appropriate concept is to start with a minimum package, which will gradually increase in the intensity of programs over time as institutions develop, experience increases and trained manpower becomes more readily available. Although the program commences with a modest technical package, it is intended to evolve in the longer run to include more complex technical programs and a broad set of social programs for reaching broader social objectives.

B. The Problems

Two basic problems arise with respect to the Minimum Package Program. First is the problem of improving the quality of the job which is now being performed, within the context of the limited number of functions included in the package. The second problem is making choices as to what functions

will be added to the existing basic package and the order in which those functions will be added. Solution to both of these problems will require considerable flexibility.

Improvement in the functions now being performed will require close tailoring to specific ecological conditions requiring variations in the package from one place to another. Similarly, as the intensity of the package is increased and services are added, the optimal choice of services to add will undoubtedly differ from one region to another. Thus the package program will have to acquire over time a basis for flexibility. That will undoubtedly involve increasing decentralization of decision-making and increasing authority and responsibility at the local level. Thus an important objective of the present package program must be to develop the trained manpower and the farmers organizations for accepting this authority and responsibility and using it effectively for the expansion and the increasing efficiency of programs.

The succeeding discussion of the Minimum Package Program will be divided arbitrarily into a discussion of the technical package and then of the infrastructure package. The technical package is defined as that set of activities that can be carried on through government agencies without organization of farmers into effective decision-making and participatory organizations. The infrastructure package is defined as requiring such farmer organization as a condition of its success.

C. The Technical Package

The long run development of rural Ethiopia requires such a vast quantity of resources that it must be based on a series of efficiency increasing agricultural practices which will effectively increase production at declining costs per unit of output. The present technical package is largely a recommendation to use substantial quantities of purchased fertilizer. Positive farmer response to this package shows it to be highly profitable under most conditions and at current price relationships. Farmers are further induced to take up the technical package by a subsidized price of fertilizer and by an effective credit program for financing the purchase of the fertilizer. The latter is undoubtedly of particular importance in reaching the lower income farmers.

1. Nature of the Present Package Organization

The present package is comprised of fertilizer distribution centers staffed by government employees. These employees sign up farmers for fertilizer sales and credit and extend technical knowledge through demonstrations and personal contact.

The technical package as presently constituted probably does not require organization of farmers into decision-making units in order to be effective. The success of the technical package may indeed be used as a basis for providing incentives for farmers to organize in the decision-making and action units to reach various other social objectives.

Despite the simplicity of the present technical package there is clear need for increased technical knowledge and modification of the package to suit specific conditions. For example, there seems evidence that there are considerable areas of soils in Minimum Package Program units for which there is significant response to nitrogen but not to the other nutrients included in the standard recommendation. The effect is to greatly increase the cost of fertilizer to farmers in such situations relative to the production response which they are getting. This example illustrates the need to back the package program with an effective, dynamic, expanding experiment station system.

The requisites for expansion in the area covered by the minimum package, which is still exceedingly limited, are increased numbers of trained manpower and rapid expansion of the road system. The Minimum Package Program appears to be successful largely when it is in close proximity to roads. There is considerable evidence in the intensive projects in Ethiopia that spread of the technical package is slight beyond a short distance from roads.

2. Priorities for the Technical Package

With respect to the technical package, the priorities for the future would appear to be (i) improving the quality of the technical package in the areas in which the minimum package is already operating; (ii) expansion of the area covered; (iii) increasing the intensity of the package program.

The extent to which the existing minimum package requires improvement in its quality is greatly underrated with an accompanying premature emphasis on priorities for expansion of activities. It has already been indicated that further testing and refining of the fertilizer recommendation is in order. In addition, there are many questions with respect to the effectiveness of the existing extension program. For example, there is some question whether the current one hectare plots are the most effective means of demonstrating new techniques to farmers or whether the extension agents are adequately trained to handle these plots in an effective manner. There are also substantial problems with the model farmer program. There is question whether extension methods which are successful in high income countries with abundant trained manpower are effective in countries such as Ethiopia. It is likely that there will have to be a considerable period of experimentation to find the most effective extension means for a situation of increasingly complex technology, desire for broad participation of farmers and very limited quantities of trained manpower.

The complexity of the technical package will undoubtedly increase over time. With development of an effective research system, high yielding varieties will be developed which will undoubtedly require modification of agronomic and other practices. More complex fertilizer recommendations will develop. Pest control will become increasingly more important and of course will remain complex. These all will require emphasis on upgrading the technical competence of the extension agents and increased knowledge of techniques for conveying information to farmers.

One of the most important activities which must be carried on in the minimum package units is to develop them to the point at which their management has the knowledge and the confidence to begin to make policy at the package unit level. At that point the authority and responsibility for such action can be gradually turned over to those units with a resultant increase in efficiency. Developing that ability will itself be a major task. It can be pursued effectively within the existing broad set of activities and indeed premature expansion of the number of activities may divert attention and impede development of the confidence and experience in various areas requisite to increasing local responsibility.

It should be clear from the preceding that there is much to be done to raise the effectiveness of the existing package program and that there may well have to be a significant delay before the problem of priorities in additions to that program have to be faced. It is important, however that the ground work be gradually laid for setting those priorities.

There is pressure and reason to rapidly expand the area covered by the Minimum Package Program. This requires priorities to supplying trained manpower and the building of roads. Again, increasing the intensity of existing units will compete for these resources and slow the expansion of the area covered.

There will undoubtedly be particular pressure to intensify the package units by increasing emphasis on marketing, that pressure coming from both external sources and from the farmers themselves. As indicated above, this is an extremely complex question and one on which there is considerable controversy concerning the facts, let alone as to how to proceed given a set of facts. Given the farmer pressures it seems likely that the Minimum Package Program will have to provide at least some minimum quantity of marketing services. As indicated above, it would perhaps be most effective to initiate such services around an initial storage center located at the village market center which would provide a minimal option for farmers beyond immediate sale of their crops. A credit program tied in with the storage would further facilitate this activity. If such activities were desired by farmers and proved successful, a cooperative could then be organized around this store and then farmers themselves utilized to set priorities for further development and to provide the capital and the risk bearing ability for that development.

Farmers would, of course, like a system of guaranteed prices. Here it is important to recognize that while prices are very important at the micro level in rural development they must basically be the product of national policy. It is doubtful if, in the short run, farmers can be sufficiently well organized on a sufficiently large scale to have a direct effect on the level of prices. In any case before such is attempted, it is important that the basic price making mechanisms be understood, - a knowledge that is now lacking.

D. The Infrastructure Package

The technical package may be provided in large part from external manpower and resources. In contrast, the total resource requirements for the infrastructure package of roads, water supplies, schools, health and other social services are so immense that they can be provided only with local organization for raising resources and for providing the know-how with respect to local conditions for making those resource expenditures effective.

As indicated above, there may be an important and indeed essential role for national resources as matching funds to stimulate development of local organization. However, the local organization is crucial.

In developing local organization for raising resources for infrastructure development there may be an important outside role in providing organizational facilities as well as basic matching funds as an incentive. For example, in the case of roads it may be necessary to have some type of a community development organizer to help mobilize local people and an engineer to help with the technical side as well as physical and financial resources to provide the machinery and other outside inputs that may be necessary to efficient operation.

There is a great need for experimentation and development of the techniques for providing such local organization and for operating it.

Within the context of such local organization there will be need for continued research and experimentation as to the effective means of providing the technical package for infrastructure development. For example, it is still not clear what is the most effective way to build roads, particularly with respect to the combination of hand and machine methods. Similarly for the case of water supplies. There are a number of questions with respect to how schools should be built, where they should be built and how they should be staffed. Another similar set of questions arises with respect to health facilities.

The function then of the local organization is to provide (i) a basis for setting priorities and ordering the provision of local services according to community felt needs; (ii) to help raise the resources to

fulfill those needs and (iii) to provide the knowledge of local conditions which can make expenditure most effective.

The outside resources needed are (i) personnel for organization and provision of technical services and (ii) financial and physical resources to complement those raised locally. It is not clear to what extent these resources and services should be part of the minimum package effort or a separate effort. Their successful implementation is, however, essential to the expansion of the minimum package to national coverage.

E. Summary Recommendations for the Minimum Package

I would set the following priorities for the minimum package: (i) improve the technical package through close contact with experiment stations; (ii) improve the quality of extension and the training of extension agents; (iii) introduce an effective evaluation process; (iv) expand the area through road building; (v) initiate a gradual grassroots marketing effort; (vi) develop local autonomy within the package units by bringing farmers into the decision-making process; (vii) from the preceding, develop a set of priorities for introducing social services.

IV. The Role of Intensive Pilot Projects Generally and of the ADA Project Specifically

A. Contrast in Philosophy and Inherent Dangers

There is a clear contrast in implicit philosophy between the intensive rural development projects such as CADU, WADU and ADA on the one hand and the Minimum Package Program on the other. The philosophy of the intensive projects is based on the assumption that rural development is a complex process involving many component parts, each of which has a highly complementary relationship with each of the others. Thus, if any one of the parts is missing the others will be ineffective. In contrast, the Minimum Package Program is based on the philosophy of commencing with a small subset of activities and then gradually expanding those over time. If the intensive projects are followed, manpower limitations will for a long time restrain coverage to a very small fraction of the national area. However if the precepts of the intensive projects are correct, then the minimum package approach will prove ineffective until the intensity of coverage has been substantially increased. Thus, although the national coverage may be broad the effect on growth of agricultural production will be small. Fortunately it appears that under Ethiopian conditions there is a technically valid potential for an effective minimum package growth program. This then raises questions as to the role of the intensive projects.

1. Basic Function for Intensive Projects

The function of the intensive projects, including ADA, within the context of the minimum package approach must be to serve as foci for experimentation with respect to means for (i) improving the effectiveness of the existing package and (ii) setting priorities for the expansion of the package. The danger of the intensive programs, given the fact of their intensity and provision of complementary functions, is that they will provide lessons which cannot be absorbed within the context of the minimum package and which cannot provide national coverage because of their degree of intensity. Thus the intensive projects may be seen as intensive with respect to personnel, that is they will have more personnel for a given area covered than will the Minimum Package Programs and their personnel will be better trained particularly with respect to developing program improvements for trial and for diagnosing logical time phasing. Their purpose is not to be intensive with respect to range of activities carried on except as a means of testing the time phasing of additional activities for the national program.

If the intensive projects are to fulfill their role effectively they must in the longer run be chosen and located in areas which have special features requiring modification of package approaches and so as to give full range of ecological zones in the country. The three present intensive projects do cover somewhat different situations and may logically be maintained. In the longer run additional relatively more intensive projects may need to be added in order to provide more complete coverage of ecological zones.

There are potentially somewhat conflicting views of the role of the intensive projects. In this report an experimental role has been suggested. The role has also been suggested of the intensive projects serving as in a sense bellwethers for the minimum package projects. They would become somewhat less intensive than at present evolving in the direction of the minimum package until they had become only slightly more intensive than the minimum package and thereby indicating the direction of intensity increase for the Minimum Package Programs. It is argued that the present degree of intensity of the intensive programs cannot be justified given the priority to broad national development. In the final analysis these two somewhat different objectives of experimentation and provision of only slightly more intensive and effective development area could prove to be highly complementary. On the one hand, if the intensive projects are to play their role effectively they must be applied and practical. Thus, having a substantial area to cover and forcing priority decisions as to how resources will effectively be used should be a critical part of the experimental process. However, in performing this function, it must be recognized that the answers as to what are the most effective types of programs are not yet at hand. Thus the problem is not one of using the intensive projects for simply applying known knowledge as to how the minimum package should be expanded and how it should be improved, but rather one of developing that knowledge.

If the intensive projects are to fulfill the experimental role effectively they must be granted a high degree of flexibility, authority and responsibility so that they may experiment and have failures as well as successes. At the same time, however, they must have an unusually high degree of accountability for their efforts. The various actions attempted must be documented carefully and clearly so that it can be seen what lessons can properly be drawn and given broader application. In other words, there must be emphasis on justification beforehand and more emphasis on documentation afterwards.

B. Priority Activities For Intensive Projects

Priorities for the intensive projects might logically lie in the following directions. First, priority might be given to improvement of the technical package extended to farmers. For this, the intensive projects must work carefully with the experiment stations in testing their latest developments under farm conditions and carrying farmer problems back to the experiment stations. This is a difficult and technical task requiring the best of personnel. It seems logical to concentrate such personnel in the intensive projects and then to develop what is proven there on a larger scale.

Second, priority might be given to experimentation with and development of improved extension techniques including working out training methods for extension agents, means of organizing farmers to extend information and techniques for demonstrating new technologies.

Third, priority could go to experimentation with organization of farmers for carrying on marketing activities. As indicated previously, farmers seem to attach considerable importance to this area and yet there is great uncertainty as to what should be done. The intensive projects could play a major role in experimentation in this direction.

Fourth, the priority could be given to organization of farmers for the development of the basic infrastructure of roads and other public and social services. A most important problem in this respect is how to join together the technical knowledge of formally trained manpower with expression of felt needs and local knowledge with respect to what to do and how to do it, along with developing the capacity to raise the resources locally to pay for a portion of this effort. The intensive projects could play a major role in developing this capacity, even though the national policy issues have not been fully settled with respect to what agencies will pursue these infrastructure efforts.

Fifth, priority could be given to proceeding from this organization of farmers for infrastructure purposes to developing the basis for setting the priorities and developing means of providing various social welfare needs from improved education to water supplies, to public health facilities, to

child care. Insofar as these services must be rendered from national resources they must wait for considerably further development and a rise in incomes. On the other hand, they may achieve a considerably earlier priority if they can be developed on local resources raised through local organizations. It would be desirable for the intensive projects to experiment considerably along these lines.

Sixth, priority, although not yet appropriate because of the difficult land tenure situation, could be given to the longer-run question of the appropriate means of mechanizing small farms. Intensive projects could attempt considerable experimentation along these lines.

C. Evaluation and Research

It is implicit in the preceding view of the intensive projects that a comprehensive system of evaluation and research is necessary. Such evaluation and research is appropriately carried on at two quite different levels. On the one hand there is need for a national effort, consisting of broad studies of the effectiveness of various intensive projects and efforts in reaching farmers and the effects they have on farmer production and farmer levels of living. These might include intensive analyses of individual projects as well. On the other hand, and perhaps even more important, there is need for careful account keeping and spot analysis of specific elements of programs to allow appraisal and recommendation with respect to specific alternative program elements. This latter effort requires at least small evaluation units at each of the intensive projects. In addition, a national evaluation service is required which can provide much more intensive efforts, provide guidance for the spot studies done at each of the individual projects and provide coordination across these efforts. Because of the scarcity of manpower it would undoubtedly be useful to develop a basic evaluation unit of this type with EPID and to draw substantially upon the resources of universities and other agencies within and without the country.

V. Specific Recommendations for the ADA Project

The original conceptualization for the ADA project emphasized a less intensive approach than the other intensive projects, utilization and coordination of existing local and national governmental agencies for development purposes, and the proximity of the project area to Addis Ababa as a means of drawing national attention to the requisites for effective rural development. With the passing of time, the ADA project is more properly categorized now as an intensive project. Its element of uniqueness probably now lies with the dominance of teff as a crop in its area, location next to one of the more highly developed research stations in the agricultural research system of Ethiopia, and proximity to the Addis Ababa market with its greater opportunities for intensification of farming through vegetables and livestock production.

In the preceding sections I have depicted the ADA project as an intensive rural development project whose appropriate function in the future is that of creation, testing and demonstration of innovation as a guide to the national development effort in its own ecological zone and for certain types of innovation for other zones as well. Fulfillment of this objective may properly be seen as comprising three parts. First, an element of experimentation, testing and evaluation designed to provide improved techniques for performing functions now part of the minimum package effort. Second, development of organizational methods for organizing farmers for developing rural infrastructure. This effort would initially emphasize road building and would also experiment with the technology of road building. Third, demonstration of the effectiveness of the recommended techniques and programs in a demonstration area that could well be larger than the present project area.

A. The Testing and Evaluation of New Techniques and Programs

There is, in my view, a tendency to understate the immensity of the problems of developing and running a program for extending new technology to farmers. Thus in my view, it is premature to emphasize adding functions to the Minimum Package Program rather than increasing the efficiency of the basic program. Similarly, a high priority from the ADA project should continue to be experimentation and innovation with respect to the basic technical package. On the basis of observation of the personnel resources available to ADA, the potentials for personnel changes and expansion and the overall national development needs, I make the following recommendations for initial areas of emphasis in experimentation with respect to technical change.

1. Continue and expand the already effective working relationship with the experiment station in Debra Zeit. In this report I have continually placed emphasis on the need for intensified effort to develop improved technologies for agricultural production. ADA and the Debra Zeit experiment station could work together closely and effectively to this end. The station itself seems to be well integrated into the national system and have able and competent direction of its research effort. Nevertheless, the station itself could use added support, a support which could logically be related to the ADA project and its assistance from USAID. On the physical side there could undoubtedly be further improvement in the level of fields, and drainage. On the personnel side effective utilization could be made of significant expansion in the numbers of researchers. With respect to coordination of ADA and the experiment station, there is scope for further development of techniques for transferring new technologies from the experiment station to farmers. Perhaps even more important, there is need for further development of techniques for carrying information with respect to farmers' problems back to the experiment station. Although simple to describe, such backward and forward linkages between experiment station and farmer are exceedingly difficult to institutionalize. This represents

one of the greatest challenges in the development of a coordinated research and extension system. ADA could pioneer developing an effective set of such institutions for Ethiopian situations.

2. Develop improved extension techniques. This objective is closely related and indeed inseparable from the previous one. Comparative analysis should be undertaken of the comparative effectiveness and the means of increasing the effectiveness of the one hectare plots, of model farmers, of plots laid out by the extension agents on farmer's fields, on field day visits by farmers to the experiment station and other techniques for developing an interplay between researchers and farmers. As long as technical innovations give dramatic results, development of these types of extension services is relatively unimportant. In the longer run however, much of the growth in agricultural production will have to occur from a gradual addition of many small innovations. The small innovation requires effective extension programs.

Closely related to these matters it would be hoped that general guidelines could be laid down as to the ordering, at least for minimum package areas with similar physical conditions to those of ADA, of elements of the technical package. To what extent should pest control be emphasized? How should one go about training the extension agents if a pest control program is to be introduced? What priorities should be given to introducing new crops or new varieties of old crops? In all of this it must be recognized that for effective extension work the agents must be trained with respect to the innovations being recommended. The job is quite simple if the only recommendation is a simple fertilizer package. It becomes more complex as more complex recommendations are made. What can be learned about these processes through experimentation and evaluation at the ADA project?

3. Experimentation with organization of farmers for providing marketing services. There has already been a good start made in providing storage facilities at village level locations. These could be used as foci for development of cooperatives and bringing farmers into the decision making, financing and risk bearing operations. As indicated in the main body of the report, there is considerable uncertainty as to how best to proceed with improving marketing at the village level. The ADA project has a clear potential for useful experimentation in this direction. This experimentation would have two major parts. First, experimentation with the means by which farmers may be organized for these purposes. Second, experimentation with various techniques for handling the several elements of marketing. Experimentation could be carried on with respect to different costs of storage, different systems of providing credit to farmers when they put grain into storage, various systems for marketing the grain when it comes out of storage, various marketing strategies and so on.

B. Organizing Farmers and Providing Infrastructure Facilities

As indicated in part I, one of the primary rural development problems facing Ethiopia is how to organize farmers to raise resources and make decisions with respect to crucial rural infrastructures such as roads, water supply, etc. Because of the key role of roads and ADA's existing competence and experience in the area, I would attach first priority to expansion and elaboration of this effort in the context of experimentation and innovation.

There is still great uncertainty as to the cheapest and most effective way to build rural roads. It appears, however, that the optimal approach will lie with some combination of hand and machine work. The project could make a major technical contribution in this area by experimenting with various combinations of machinery and labor. An integral part of such an effort should be the organization of farmers for raising resources including both financial and labor resources and for making decisions with respect to the location and even choice of construction methods for roads. Various organizational and technical approaches would be judged in their effectiveness in marshalling resources for building roads, in involving various socio-economic classes in that process and in decision making with respect to the road building operation.

The contribution of the ADA project to these efforts would lie with (i) helping to organize farmers; (ii) providing technical know-how with respect to the building of roads and (iii) providing outside resources both in the form of machinery and finances as, in a sense, matching funds with the local resources. The effectiveness of use of these outside funds would be judged by the technical quality of the roads which were built and the role of the outside resources in achieving that quality and the extent to which these resources brought about contribution of local resources.

Once local groups were organized for the purpose of building roads an attempt would be made to utilize those same organizations for raising issues and getting answers as to priorities for other elements of rural infrastructure, including water supply, schools, health facilities, and so on. It is conceivable that in the organizational process some of these elements would be given higher priority than building of roads. In that case the project itself might want to turn its priorities in that same direction in order to foster the farmer organization which could be used then for various development purposes.

C. Staff Needs for Experimentation and Evaluation

It is clear from the above that special emphasis on staffing needs to be placed on:

(1) Staff with a strong biological science research - extension background to facilitate working closely with the Debra Zeit experiment station. The need is for people who have the understanding of each to bridge the gap between extension and research.

(2) Staff for agricultural marketing cognizant of the technical problems of marketing and sensitive to the needs and problems for organizing farmers to participate in these activities. It is quite possible that someone trained in agricultural economics would be most suitable for this effort. In that case, it is more than likely the person filling this role could also play a major role in the evaluation process commented on below.

(3) Staff knowledgeable about the technical aspects of road building and possibly of providing village water supplies as well with emphasis on building these facilities at low cost and with a mind prepared to experiment considerably in combination of hand and machine methods.

(4) Staff with knowledge for building of infrastructure as indicated above.

(5) Staff knowledgeable and experienced in the simplest types of evaluation, which would involve very small and simple surveys of farmers with respect to their experience with various innovations and simple record keeping techniques for evaluating the costs and cost composition for various innovations and efforts.

If the project area is expanded to provide a large demonstration effort there will arise a complex problem of staffing that demonstration as well as the experimental effort so as to emphasize complementarities of the functions and still keep a balance between activities.

D. The Evaluation Effort

It is clear from the preceding exposition that one of ADA's primary roles would be that of an experimenter and hence evaluator of (i) new techniques and (ii) time phasing of activities. An ideal organization for evaluating these activities would have three parts. (a) A small evaluation unit within the project itself; (b) a more substantial evaluation unit within EPID which would provide some leadership and coordination and interaction with evaluation in other intensive programs; (c) a relation with more intensive research in academic institutions both within and outside the country.

An evaluation unit within ADA would require at the very minimum half-time from a person experienced with simple research techniques and highly imaginative in setting priorities as to what is to be studied and evaluated. It is important to avoid collecting huge quantities of data that are never analyzed or analyzed without a sense of objectives and purpose. Only good leadership can protect an evaluation unit from such a misallocation of resources. A primary function of this leadership would be not just to direct the process of data collecting but to set the priorities as to what data are to be collected and for what purposes.

At least one full-time person would be needed for collecting the data and for analyzing it. That person should have had at least some exposure to research and research methods in the past even though they be very simple. After experience had been gained with such a unit the size of staff might well have to be increased gradually. For the more senior person, someone with experience as an extension economist who combined agricultural extension with simple research would be ideal. It should be kept in mind that evaluation as used here is more analogous to simple comparative research than to evaluation as usually practiced - the latter being more analogous to a post-mortem. Thus in selecting for experience, care should be taken to avoid the wrong type of expenditure in evaluation.

Presumably similar evaluation units should be operating at CADU, WADU and any other more intensive units which may develop over time. It would be highly desirable to have an interaction amongst these evaluation units not so much to prevent duplication of effort since in this type of experimentation duplication of effort might be highly desirable, but to provide for communication which could lead to more effective replication of efforts and provide the basis for cross fertilization of ideas. EPID could presumably provide this coordinative function. It would also be highly desirable if EPID had an evaluation unit with sufficient quality to provide technical assistance to the evaluation units within the intensive units. Further, EPID could in the longer run provide a larger evaluation service including surveys to provide more well substantiated and statistically significant results on major questions. It will become increasingly desirable, for example, to know what farmers are participating in programs and in what types of programs, what types of benefits they are gaining from them and how those benefits are reflected in improving levels of living. That would require surveys of an order of magnitude beyond the minimal evaluation units suggested for the intensive projects.

At least for some time, evaluation potentials of EPID and the intensive projects may be insufficient to handle some of the major questions which need to be dealt with. For this purpose university research personnel could prove quite useful. They could carry on the more intensive collection of data suggested above as well as providing intensive, longer term studies of specific questions.

So far, experimentation and evaluation of that experimentation has not represented a major part of the ADA effort. If the recommendations here were accepted it would seem reasonable that over the next six month period a specific set of objectives be set, personnel allocated to them and preparation made for getting them underway. In the succeeding 12 months these projects could proceed rapidly and data collected preparatory to their evaluation. In the six months following that the

evaluations could be completed. Thus in two years a significant set of experiments could be undertaken and evaluations compared. An example of such efforts would be as follows.

1. Three different extension techniques could be undertaken in three different parts of the district. These might include the one hectare plots, plots laid out on farmer's fields and use of model farmers. Careful records would be kept as to the way these experiments were developed, the personnel which were used in them, the number of farmers who were involved and the extent to which farmers accepted the recommendations. Although effort would be made to keep other influences constant across the areas, the lessons would be supported less by statistical tests and more by the full set of insights arising from close contact with the effort.

2. A set of practices to receive intensive research effort would be delineated and techniques developed for moving results from those efforts into the field. In the short run, research already underway at the Debra Zeit experiment station would have to be emphasized. Careful records would be kept of the extent of the success of the various recommendations made and emphasis would be placed on the institutional interplay between the extension process and the research process.

3. A program of village market storage would be continued with emphasis on experimenting with somewhat different techniques of building storage and recording of their costs and efforts made to organize farmers into cooperatives around the stores. Records would be kept as to the type of farmers who showed an interest in this type of activity, the types of activities which they suggested, records as to how much was stored, the length of time it was stored, the price available when the storage commenced and the price received when the goods were sold and other relevant data about the process.

4. Several road building ventures would be undertaken and careful records kept as to the cost with varying combinations of mechanization and hand labor. Simultaneously, various techniques of organizing farmers would be undertaken with careful records kept as to the kinds of farmers who joined, the role which they played, the types of projects which they preferred, their attitudes about the roads, etc.

The above of course are only illustrative and could be spelled out in considerably greater detail once they are accepted in principle.

In addition to developing the above, the first six months could be used for planning an expansion of the area served by the ADA project. Such planning would have to give attention to the following: (i) how large and what type of an area to cover; (ii) the types of programs which would be expanded to those areas with emphasis on attempting a setting of clear priorities as to the intensity of program and the program elements.

The preceding suggestions form the basis not only for the development of the project over the next two years, but are set forth as a viable set of suggestions for the longer run as well. If these suggestions work well a second phase of the ADA project might well involve considerable intensification and expansion with respect to the evaluation unit to take on more sophisticated analysis and studies. It is also quite likely that the complexity of technical packages would increase so that it would become increasingly necessary to turn attention to vegetable farming, livestock farming and a number of other changes in farming systems. The project, with its location near the Addis market has particular advantages from that point of view. Such planning for the longer run should probably commence within the next six to twelve months.

The set of processes which are set forth here for the ADA project can be initiated and gotten underway with some results to show in a two year period. It should be recognized that just as the minimum package itself should evolve over time, becoming more and more intensive so the same can be said for projects such as ADA as well. Although what I am recommending does not involve dramatic changes in direction, it does provide the basis for a sound long-term evolution of the ADA project as an intensive project. If these recommendations work they would be the basis for continued expansion of personnel and intensity of effort over time. It is not a program that involves the gradual merging of the intensive projects into a gradually intensifying minimum package program. It is a program which sees the intensive projects as continually further intensifying with more experimenting, continually moving ahead of the minimum package projects.

It should be clear that the program I am suggesting requires a high level of planning and consistency. The administrative task is a difficult one. It requires flexibility, responsibility, and most of all a high degree of imagination in seeing rural development needs and how to experiment with respect to them. Finally, it requires careful ex post record keeping and this done in a highly imaginative way to shed light on important questions.

Finally, it should be clear that the intention of the suggestion made here is not to make ADA or the other intensive projects into experiment stations as such. It is intended that they experiment with new techniques but do so in the practical context of operating programs. The intensive projects are to serve as a bridge and a testing ground between the minimum package projects on the one hand and the experiment stations and imaginative thinkers on the other hand.

E. Expansion of the Project Area

There has been argument that the concentration of resources in the present ADA project area is excessively intensive. However, it should be recognized that if the ADA project is to fulfill a function of experimentation and teaching it requires a substantial concentration of imaginative personnel and resources for experimenting and evaluating those experiments. Although, the project must necessarily be intensive in terms of personnel, it need not be comprehensive with respect to the number of activities carried on. Nevertheless, it may be perfectly reasonable to expand the project area. That expansion might take place in a similar geographic area with similar problems or might occur in an adjacent area of very different ecological conditions.

There has been considerable discussion of the possibility of expanding into an adjacent area of the Awash river valley. It has been argued that such expansion would provide some scope for relieving the pressure of the tenants in the present ADA district on their very limited land area. If that alternative is explored, it should be kept in mind that it is highly unlikely that land settlement can be a major solution to the overall land tenure problem in Ethiopia even though it could conceivably relieve pressures in individual small areas. There has also been discussion of experimenting with resettlement of nomads in an area of the Awash. The nomads will, in the long run of course, represent a very major socio-economic problem for the country. The sooner techniques are developed for understanding the problems with nomads and how they might best be settled, the sooner effective programs can be pursued. Work in the Awash valley would offer opportunity for experimentation with irrigation and multiple cropping, certain livestock potentials, production of oil seeds, fruits and vegetables and operation in an area with relatively good transport facilities.

It should be recognized however that operation in the Awash valley introduces a radically different set of problems and would almost certainly call for a parallel administrative unit and development unit to that of the ADA district. These represent extremely complex problems which should be examined with considerable care before a move is made.

VI. Future Visitation

In the initial invitation to make this visitation it was stated that this would be the first of a sequence of visits. On this visit my role was primarily to draw upon my outside experience for making recommendations within the context of rural development in Ethiopia. Succeeding visits would allow me to build on experience within Ethiopia to make increasingly specific recommendations. Although an annual visit would, in general, be adequate at this stage, a return visit within six months would probably