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

I. Introduction

This report presents observations and policy judgements under three headings. First, brief consideration is given to the current 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. This discussion indicates the need for priorities in the allocation of personnel and finances, as well as pointing out 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. These recommendations also serve to minimize the innate conflict between intensive and extensive projects which arises from their different philosophies. Fourth, a specific set of recommendations is presented for the ADA project.

This report is based on observations I made during my recent trip to Ethiopia. The two weeks spent for this purpose is, needless to say, an exceedingly brief period. However, my perspective was enlarged by my previous visit to CADU and minimum package projects in Ethiopia. Prior to coming to Ethiopia, I also 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 presently being completed by Dr. Uma J. Lele of the World Bank. The classifications used in this report and a substantial proportion of the underlying view of rural development draw heavily on her work.

In addition, prior to my Ethiopian trip, I 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 and various other bureaus of the Ministry of Agriculture, as well as with staff in the Agricultural and Industrial Development Bank, the Planning Commission, CADU, and 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 and with several of the staff at the Experiment Station at Debra Zeit. Perhaps most important, I talked to a substantial number of owner-farmers, tenant farmers, grain traders and local 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 facilities and distribution points, 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. His perspective on the project and other matters was of inestimable help.

My task was immensely facilitated by the very substantial report prepared by the ADA staff on the ADA project, its history, its present status and its plans for the future. It was a carefully developed and most informative document. Similarly, the opportunity to look at the EPID Phase II report was exceedingly helpful. While I relied heavily on these reports, both the critical unsolved problem was that of going from a large catalog of future activities to the setting of priorities and time phasing for their production. It is my supposition that this problem is unsolved because of the presently inadequate knowledge of the variable of social, economic and ecological conditions. In my view, both of the reports are also similar in that they give 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 currently ineffective; but rather that they can evolve to greater effectiveness over time. The basis for learning how to improve these programs is presently being generated and should be taken advantage of. This 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 for my current knowledge of rural development in Ethiopia. Thus it can serve 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 these small farmers with effective technology and with institutions for servicing that technology and for organizing farmers to define and meet their various welfare needs. The rural development programs, such as the Minimum Package, CADU, WADU, and ADA, must initiate the necessary micro-level institutions to service farmers and to directly forment rural development. However, whether they succeed in that role depends not only on how they are constructured, 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 this issue has been so thoroughly covered in the past, I shall largely limit my comments to those 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 with the observation that political interests and considerations of equity are the basic driving force for land-tenure change. Nor do I disagree that the existing tenure system reduces the direct incentives for the production-increasing technological change which is so necessary to overall Ethiopian development. There is, however, considerable scope for improving direct economic incentives, e.g. amended leases which specify the proportional sharing of input costs and output benefits which do not meet the basic development problems stated below.

1. Restraint on Multiplier Effects

Rural development has the potential to stimulate total economic development in many ways. One of the most important of these stimuli 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.

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 Agricultural Economics, Vol. XXVIII, No. 1, Jan.-Mar. 1973.

They would then serve to mobilize the relatively abundant labor resource and to spread limited capital supplies thinly over the labor supply. Similarly, for a nation such as Ethiopia, industries which fulfill this function are likely to offer attractive import displacement, and eventually, export potentials. Thus, the composition of expenditure patterns from rural incomes is important. The expenditure pattern in turn, depends very much on the pattern of income distribution. A land ownership pattern which provides a high proportion of rural development based income increments 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; 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. 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 there is a mixture of small-owner and tenants on the one hand, and large contract farmers or single-owner operated mechanized farms, on the other. Ethiopia could quickly move to such a pattern 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. These institutions are not intended and probably could not efficiently serve the needs of the large farmer. The area-related overheads for such a set of rural development institutions are, however, very substantial. It is much more economical to carry those overheads when a high proportion of the cropland can be covered by the program; a coverage which becomes impossible when there is a sharp division between a small number of very large farming units and a large number of very small ones. Thus, as the Minimum Package Program expands and its total cost increases, it may come increasingly under question on the basis of losses in efficiency stemming from the land tenure system.

2/ See Uma J. Lele and John W. Mellor, "Jobs, Poverty and the Green Revolution," International Affairs, Vol. 48, (January 1972), pp. 20-32.

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 intensifying cropping occur, powerful arguments arise for limited types of mechanization to break restrictive labor bottlenecks. In an area marked by small owner-operated farms, selective mechanization of bottleneck operations tend to occur relatively naturally. This process will often increase incomes of the bulk of the small farmers. In a situation in which much of the land is in very large holdings, mechanization may be used for breaking overall labor bottlenecks and for shifting from a system of tenant farming to one of large owner-operator units or contract farming. This development may result in the massive eviction of tenants and to 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 with 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

Increasing rural incomes through new agricultural technology, while desirable for the rural poor when land ownership is broadly distributed, may exacerbate the social and economic problems of the poor under a system of highly concentrated land ownership. In such a situation mechanization would not only encourage eviction and contract farming; it would also increase the concentration of power and wealth in the hands of the land-owning classes and help to sustain the existing landownership pattern. A potentially desirable green revolution may result in increased 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

While the other policy areas discussed in this section require direct positive action, in the case of price policy the concern is more to avoid the 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 crops 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. It thus adds to net national income, rather than 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 aimed at broad participation in economic growth. However, price determination is extremely complex. There exists the distinct danger that national price action policies, if made in ignorance, may do more harm than good. Thus caution should be exercised in any policy efforts in this area. Policies should aim at the elimination of existing distortions and imperfections rather than at more positive action.

At the national policy level monitoring is required of the relative prices of food and other crops and of the relationship between domestic and international prices. The two sets of relationships are interconnected. International price relationships may well reflect an underlying set of supply-demand and input-output relationships which are necessary to provide 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 would be relatively depressed. Obviously this militates against acceptance of the new food crop technologies which have such a large potential for increasing farmers' income. In the long-run this price structure may also, by delaying diffusion of new technology, cause domestic food prices to be somewhat higher then 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 (i) large year-to-year fluctuations in the prices which they receive for their food crop output, (ii) a highly erratic pattern of seasonal increases, which contributes to the overall year-to-year price instability; and (iii) larger inter-market price differentials then exist in many other low income countries. There are three potential influences which explain these facts.

First, the infrastructure of transportation, communcation and information is particularly weak in Ethiopia. At the simplest level, this means high transport costs from one market to another. Prices in the various markets have the opportunity to get further out of line with

each other than would occur where there was a more highly developed infrastructure. Similarly, the lack of market information leads to erroneous stocking policies, with consequent fluctuations in prices when stocking errors are corrected. It may well be that in improving the marketing system under these circumstances, massive expenditures on the improvement of roads, communications, and the market information infrastructure should be given first priority.

Second, the proportion of total production which is marketed is very small while 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, the ingredients are present 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 fact of existing price relationships.

Third, and interacting with the other two factors, is the possibility of insufficient competition or collusion in private trading. 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 the speculative manipulation of the market and hence in erratic seasonal price fluctuations as well as increased annual variation in prices. However, the bulk of the evidence does not support this possibility. The explanation of erratic price behavior seems to rest primarily on the first two factors.

A substantial number of studies in countries with conditions very similar to those of Ethiopia have consistently shown that private trade is entered into relatively easily, particularly at the lower levels. Indeed private trade may be entered into by the relatively low income farming classes themselves.[3] It has also been found in these countries 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 that private trade in Ethiopia lacks competitiveness.

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

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. Nevertheless, such an intrusion may be necessary if present markets are indeed operated collusively and inefficiently in their current context. Of course if these assumptions concerning the marketing system are not correct, this intrusion would interfere with other important aspects of rural development. 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 allocating personnel and institution building capabilities to direct production-increasing activities.

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 these two objectives is likely to lead to expensive and inappropriate policies. My tentative conclusion is that the assurance of adequate urban food supplies and the provision of adequate farm-level prices should be dealt with by somewhat different policies.

With respect to ensuring urban food supplies, it seems desirable for the government to have a significant quantity in storage in major urban centers. It is, however, difficult to estimate the optimum quantity. Perhaps a minimum sufficient figure would be one which, when combined with imports, gives 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. This task alone is likely to be a highly demanding task that can not be fulfilled relatively soon.

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. In addition, the farmers should be required to absorb a substantial proportion of the risk and costs involved. This essential to responsible setting of priorities and operating procedures. 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 distant areas, 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 storage facility might be organized into a cooperative. They could use that institution as a basis for making and executing decisions as to how to proceed with respect to cooperative organization of markets. Such an approach would undoubtedly proceed slowly, but it might quite possibly be effective.

Because of its importance, 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 policy emphasis to expanding and improving agricultural production research because of (a) its key role in rural development, (b) the basically solid core of research institutions already available and (c) my judgement that Ethiopia will soon lack profitable recommendations to farmers if the research effort does not receive additional attention and support.

Because of the phenomena of diminishing returns arising from relatively fixed land area, the future of agricultural production is necessarily hinged to the development of new high yielding agricultural technologies which reduce the costs of production. Ethiopia has been fortunate in that a relatively simple package is currently available with apparently widespread applicability. That package is, in essence, the application of modern chemical fertilizers in 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, rather than an essentially static 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 crop varieties, agronomic practices, pest control, weed control and other matters. Furthermore this research must be oriented towards specific agronomic and climate conditions which vary widely 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 to develop complex integrated agricultural research systems. It is my impression that the basis for such a research system is clearly established in Ethiopia, which has several experiment stations located in various ecological regions within the country. It is also my impression that there is not presently a clear set of new major yield increasing technologies in the offing. It seems to me, as well, that considerable expenditure could be made for further improvement of the physical conditions of the various

research stations and the increased staffing of those stations with both national and expatriate personnel. Thus it appears to me that while the institutional structure is being built on a sound basis, there is a great deal more work to be done. I place particular emphasis here because I sense an over optimism with respect to the technologies currently or soon to be available. Another reason for this emphasis is that except for the lack of necessary technology, I believe that building an effective institutional structure of rural development is within reach.

The existing package for technological improvement in agriculture of course continues to result in production increases as its geographic coverage broadens. There is a substantial potential remaining in this respect. However, as each successive package unit is likely to soon face a technology bottleneck to further improvement, staff morale may be debilitated. 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. Shortages are likely to remain as long as the population increases rapidly and the relatively low income people participate in the growth process through increasing employment. Improved employment opportunities for the poor of course lead to rapid increases in the demand for basic food crops, an item which commands a high proportion of their increased incomes.

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 these limited areas, particularly if they are handicapped by poor transportation facilities, could depress prices locally. The same absolute increase in production, if 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 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 priorities and running 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, specifically Ethiopia's two agricultural institutes. The latter undoubtedly must be substantially expanded. In addition, it seems likely that the demand for graduates of the agricultural college at Allemaya will increase substantially over time. Thus expansion and improvement of such institutions are among the most necessary conditions for rural development and require a high national priority.

It is my judgement that despite a 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 in 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 allocating 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. At past price relationships fertilizer is highly profitable to farmers. Given the relatively large increases in crop output prices which have occurred and which undoubtedly must continue to occur, it is feasible for farmers to absorb a substantial increase in the price of fertilizer, perhaps on the order of 25 to 50 percent, and still maintain profitability. 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 low 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; 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 though recently developed, has been built very effectively. Potential losses from the decline of this structure are hence particularly large.

In view of the scarcity of fertilizer it may be necessary to reduce somewhat the rate of expansion of the Minimum Package Program. Nevertheless a substantial case can be made in Ethiopia for a special priority to obtain 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-laterial 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 a 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, they are even more basic to the objective of reaching the bulk of rural people through rural development programs.

As will be emphasized in the 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. High priority must be given both to allocating existing resources and to raising additional resources for this purpose.

3. Tapping Rural Resources for Rural Infrastructure

The quantity of resources now available at the national government level and the demands already made upon them probably make it impossible for a full national program of road building to be adequately carried out without tapping existing rural resources. Perhaps even more important, it will be necessary to use the additional resources that are generated by the rural development process itself. 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, raising resources itself requires local organization. In addition, scarcity of trained manpower requires organizing rural people for many aspects of the execution of projects.

In time the processes of rural development will proceed to the point at which it becomes economical 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.

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 of Ethiopia's rural development strategy to provide broad coverage of the geographic regions of the country and to

include the mass of people within each of those regions. Because of the lack of institutional organization, the scarcity of trained manpower for those institutions, and the inadequacy of technical knowledge as to how to proceed with rural development, broad coverage requires that the intensity of coverage be held at a low level: hence, the term Minimum Package Program. The term however, is in one sense a minnomer. The procedure is to start with a minimum package, and then to gradually increase the intensity of programs as institutions develop, experience increases and trained manpower becomes more readily available. Thus, although the program commences with a modest technical package, it is intended to evolve to include more complex technical programs and a broad set of social programs.

B. The Problems

Two basic problems arise with respect to the Minimum Package Program. First is that 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, which of course will require variations in the package from one place to another. Similarly, as the intensity of the package is increased, the optimal choice of additional services will undoubtedly differ from one region to another. Thus the package program will have to acquire a basis for flexibility over time. This will undoubtedly involve the decentralization of decision-making and a gradual shift of authority and responsibility to the local level. To this end the present package program must develop trained manpower and the farmers organizations. This will be an effective means for expanding the programs and increasing their efficiency.

The succeeding discussion of the Minimum Package Program will be divided arbitrarily into a discussion of the technical package and of the infrastructure package. The technical package is defined as that set of activities that can be carried on through government agencies without organizing farmers for an effective decision-making and participatory role. 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. As noted above, 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 involves 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 decision-making farmers' organizations to be effective. However, the success of the technical package may be used as a basis for providing incentives for farmers to organize to reach various other social objectives.

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

To expand the still limited area covered by the minimum package, it is requisite to increase the numbers of trained manpower and rapidly expand the road system. The Minimum Package Program appears to be most successful when located in close proximity to roads. Similarly in the intensive programs evidence suggests that the technical package spreads only slighly in areas that are not close to 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. This error is accompanied by a premature emphasis on establishing priorities for the 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 currently used one hectare demonstration plots are the most effective means of demonstrating new techniques to farmers. It is also unclear 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 means of extension in a situation marked by increasingly complex technology, a 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 crop varieties will be developed which will probably require modification of agronomic and other practices. More complex fertilizer recommendations will develop. Pest control,always a complex problem, will become increasingly more important. These new components will require emphasis on upgrading the technical competance of the extension agents and on improving 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 the appropriate time the authority and responsibility for policy making can be gradually turned over to qualfied units, with a resultant increase in efficiency. Developing this ability, while a major task, can be pursued effectively within the existing broad set of activities. Indeed expanding the number of activities prematurely may divert attention and impede the development of the confidence and experience which is 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. There may also have to be a significant delay before the problem of setting priorities for program expansion can 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 for supplying trained manpower and building roads. Again, increasing the intensity of existing units will compete for these resources and check 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. There is considerable controversy concerning the facts in this matter, let alone as to how to proceed under any given 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. This, of course, would provide an alternative to immediately selling their crops. A credit program tied to the storage program would further facilitate this activity. If such activities were desired by farmers and proved successful, a cooperative could then be organized. Farmers could themselves be 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 that, 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 an attempt is made, 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 control resource requirements for the infrastructure package of roads, water supplies, schools, health and other social services are immense. These various components can be provided only by local organizations that are designed for raising resources and for providing the necessary 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 organizing local people for raising resources for infrastructure development, there may be an important outside role in providing organizational facilities, as well as in supplying basic matching funds as an incentive. For example, in the case of roads it may be necessary to have some type of community development organizer to help mobilize local people. Also needed may be an engineer to help with technical details 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 and operating such local organization.

To be effective, such local organization needs continued research and experimentation as to the effective means of providing the technical package for infrastructure development. For example, the most effective way to build roads is unclear, particularly with respect to the proper combination of hand and machine methods. The same applies in the case of water supplies. There are a number of questions concerning how and where schools should be built and how they should be staffed. A 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 the 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 whether they should be a separate effort. Their successful implementation is, however, essential for expanding the minimum package to nationwide 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 Inherit 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 basic presumption of the intensive projects is that rural development is a complex process involving many component parts, each of which has a highly complementary relationship with the others. Thus, if any one of the parts is missing the entire system will be ineffective. In contrast, the underlying theory of the Minimum Package Program is to commence with a small subset of activities and gradually expand these over time. If the approach of the intensive

projects is followed, manpower limitations will for a long time restrict 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 Minimum Package Project will have but a small growth of agricultural production. Fortunately, it appears that under Ethiopian conditions there is a technically valid potential for an effective minimum package growth program. Given this fact it is necessary to turn to questions of the role of the intensive projects.

1. Basic Function for Intensive Projects

The function of intensive projects, including ADA, within the context of the nationwide 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. Given the intensity and the complementarities of the intensive programs, they may provide lessons which cannot be applied to the minimum package. Moreover, these lessons may not be relevant for national coverage. The intensive projects may be seen as intensive largely with respect to personnel; that is they will have more personnel for a given area covered then will the Minimum Package Program. Their personnel will be better trained, particularly with respect to developing tentative program improvements and diagnosing logical time phasing. Their purpose is not to be intensive with respect to the 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 be located in areas which have special conditions that require modifications in the package approach. Thus the full range of ecological zones in the country can be covered. The three present intensive projects do cover somewhat different situations and may logically be maintained. In the longer run additional more intensive projects may need to be added to include more ecological zones.

There are, of course, conflicting views of the proper role of the intensive projects. In this report an experimental role has been suggested. Others have suggested that the intensive projects serve as bellwethers for the minimum package projects. Under this latter view the intensive projects would gradually become less intensive than at present, until ultimately they became only slightly more intensive than the minimum package. They would thereby indicate the correct direction for the Minimum Package Programs to follow. 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 perspectives could prove to be highly complementary. If the intensive projects are to play their role effectively their

innovations must be practical. Thus, having a substantial area to cover and forcing priority decisions as to how resources will effectively be used should be critical parts 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. The intensive projects cannot be used merely to verify existing knowledge as to how the minimum package should be expanded and improved. Rather, their function is to develop new knowledge.

If the intensive projects are to fulfill this experimental role effectively they must be granted a high degree of flexibility, authority and responsibility. Thus they may conduct genuine experiments which will result in 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 carefully and clearly documented so that lessons can properly be drawn and given broader application. In other words, there must be emphasis on justification beforehand and 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. The stations must also be equipped to review problems reported by the farmers. This is a difficult technical task requiring the best personnel. It seems logical to concentrate such personnel in the intensive projects. All discoveries made there could later be tried on a larger scale.

Second, priority might be given to experimentation with and development of improved extension techniques, including 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 organizing farmers to carry 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, 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 unite the technical knowledge of formally trained manpower with the perceived needs and knowledge of the local people. Compounding the difficulty is the need for 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, including improved education, water supplies, public health facilities, and child care. If these services must be provided with national resources, they must wait for considerably further development and a rise in incomes. On the other hand, they may be given considerably earlier priority if they can be developed by resources raised through local organizations. It would be desirable for the intensive projects to experiment considerably along these lines.

Sixth, priority, could be given to the longer-run question of the appropriate means of mechanizing small farms. Although such mechanization is not yet appropriate because of the difficult land tenure situation, intensive projects could experiment in this useful area.

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 broad studies of the effectivenss of various intensive projects in reaching farmers and the effects these projects have on farmer production and farmer levels of living. Intensive analyses of individual projects may be needed 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 the very least, the creation of 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 (i) a less intensive approach than the other intensive projects, (ii) utilization and coordination of existing local and national governmental agencies for development purposes, and (iii) 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. The program is unique in that teff is the dominant crop. Another unusual feature of the ADA project is that it is located next to one of the more highly developed agricultural research stations in Ethiopia and in proximity to the Addis Adaba market. Thus there are great 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 creating, testing and demonstrating innovations as a guide to the national development effort in its own ecological zone. Of course the project can provide guidelines for certain types of innovation for other zones as well. There are three important elements to the development of innovations. The first is experimentation, testing and evaluation. The purpose of this to provide improved techniques for performing functions that are now part of the minimum package effort. The second important goal is the development of organizational methods for organizing farmers to develop rural infrastructure. Since this effort would initially emphasize road building, it would also experiment with the technology of road building. Third, is to demonstrate the effectiveness of the recommended techniques and programs. The demonstration area used for this purpose 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 I feel that it is premature to emphasize adding functions to the Minimum Package Program. Rather attention should be paid to increasing the efficiency of the basic program. Similarly, a high priority for the ADA project should continue to be experimentation and innovation with respect to the basic technical package. On the basis of my observations of the personnel resources available to ADA, of the potentials for personnel changes and expansion, and of the overall national development needs, I make the following recommendations for initial areas of emphasis in experimentation with respect to technical change:

1. Efforts should be made to continue and expand the already effecctive 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 station could work together closely and effectively to this end. The station itself seems to be well integrated into the national system. Its research effort is ably and competently directed. Nevertheless, the station itself could use added support; a support which could logically be related to the ADA project. On the physical side there could undoubtedly be further improvement in the level of fields, and drainage. Concerning personnel, the significant

expansion in numbers of researchers could be effective. With respect to coordination of ADA and the experiment station, there is scope for developing additional techniques to transfer new technologies to farmers. Perhaps even more important, there is need to build a feedback mechanism 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 be a pioneer in developing an effective set of such institutions for Ethiopian situations.

2. Programs should develop improved extension techniques. This objective is closely related to and indeed is inseparable from the previous one. Comparative analysis should be undertaken of the effectiveness of and possible improvements in a number of extension strategies, e.g. the use of one hectare demonstration plots, model farmers, plots laid out by the extension agents on farmer's fields, field day visits by farmers to the experiment station, and various 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 innovations require effective extension programs.

Closely related to these matters is the hope that general guidelines can be laid down for the elements of the technical package,at least for minimum package areas with physical conditions similar to those of ADA. Many pertinent questions arise in this regard. For instance, 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 extension agents must be trained with respect to the specific innovations being recommended. The job of field personnel is quite simple if the only recommendation is a basic fertilizer package. It becomes more complex as more complex recommendations are made. Much can be learned about these processes through experimentation and evaluation at the ADA project.

3. It is imperative to experiment with organizing farmers for providing marketing services. There has already been a good start in this direction by providing storage facilities at village level locations. These could be used as foci for the development of cooperatives and for 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. The experimentation would

have two major parts: First, it should be concerned with the means by which farmers may be organized for these purposes. Second, it should test various techniques for handling the several elements of marketing. Experimentation could also be carried on with respect to various storage costs, different systems of providing credit to farmers who store grain, 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 because of ADA's existing competence and practical experience, I would attach first priority to expanded experimentation and innovation in this area.

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 by experimenting with various combinations of machinery and labor. An integral part of such an effort should be the organization of farmers for raising financial and labor resources. Farmers, so organized, could make decisions with respect to the location of roads and even as to the choice of construction methods. Various organizational and technical approaches would be judged by their effectiveness in marshalling resources for road building, in involving various socio-economic classes in that process, and in making decisions 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. This latter would be, in a sense, funds matching the local resources. The effectiveness of use of these outside funds would be judged by (i) the technical quality of the roads which were built, (ii) the role of the outside resources in achieving that quality, and (iii) 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 roads. In that case the project itself might want to alter its priorities to foster the farmer organization. These groups could be used then for various development purposes.

C. Staff Needs for Experimentation and Evaluation

In light of the above there should be special emphasis on building a staff with a number of special qualifications:

(1) It is necessary to have 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 are required for agricultural marketing. They must be 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 be most suitable for this effort. In that case, it is more than likely that the person filling this role could also play a major role in the evaluation process commented on below.

(3) Staff are needed who are knowledgeable about the technical aspects of constructing and, possibly, of providing village water supplies. Their expertise should include how to build these facilities at low cost. They ought also to be prepared to experiment considerably in combining of hand and machine methods of construction.

(4) Staff are needed who possess knowledge for building an infrastructure, as indicated above.

(5) There is a requirement for staff knowledgeable of and experienced in the simplest types of evaluation i.e. they would have to be able to handle very small and simple surveys of farmers' experience with various innovations and be capable of keeping simple records for evaluating the costs and cost composition of various innovations and efforts.

One problem should be noted. If the project is expanded to demonstrate a wide range of innovations, it will have to provide staff for both the demonstration and the experimentation efforts. The project will have to perform a balancing act to emphasize complementarities of the functions and still maintain an equilibrium 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 experimentor 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 would incorporate evaluations from other intensive programs; (c) a

relation with more intensive research in academic institutions both within and outside the country.

At the very minimum an evaluation unit within ADA would require half-time work from a person experienced with simple research techniques. This researcher would have to be 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 are 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 to set the priorities as to what data are to be collected and for what purposes, rather than to merely direct the process of data collection.

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, if they be very simple. After experience had been gained with such a unit the size of staff might gradually be increased. 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 analgous to simple comparative research than to evaluation as usually practiced - the latter being more a post-mortem exercise. 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 be developed. It would be highly desirable to have an interaction amongst these evaluation units. The primary purpose of this interaction would not be to prevent duplication of effort, since in this type of experimentation such duplication might be highly desirable. Rather the purpose would be to provide for communcation which could lead to more effective replication of efforts and provide the basis for cross fertilization of ideas. EPID could presumably provide this coordinating function. It would also be highly desirable for EPID to have an evaluation unit of sufficient quality to provide technical assistance to the evaluation units within the intensive programs. Further, EPID could in the longer run provide a larger evaluation service, including surveys, to supply well substantiated and statistically significant data on major questions. It will become increasingly desirable, for example, to know what farmers are participating in what types of programs, what benefits the farmers are gaining from the program, 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 collect data preparatory to their evaluation. In the following six months 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 demonstration 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, 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 these 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. Emphasis would be placed on the institutional interplay between the extension research processes.

3. A program of village market storage would be continued. Emphasis would be on experimenting with somewhat different techniques of building storage and recording of their costs. Efforts should be 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 activity and the further activities which they suggested. Records should also be kept as to how much was stored, the length of time it was stored, the price available when the storage commenced, 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 the evaluation be intensified and expanded to take on more sophisticated analysis and studies. It is also quite likely that the technical packages would become more complex. In this case 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 Adaba market, has particular advantages from this point of view. Such planning for the longer run should probably commence within the next six to twelve months.

The recommendations for the ADA project which are set forth here can be initiated and receive some results in a two year period. It should be recognized that just as the minimum package project itself should evolve into a progressively more intensive project the same can apply to 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. 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 knowing how to experiment with respect to these needs. Finally, this approach requires careful ex post record keeping. This must be 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 these programs 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 experimental and teaching functions there is a need for substantial concentration of imaginative personnel and resources for these purposes. 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 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 on the limited land held by the tenants in the present ADA district. If that alternative is explored, it should be kept in mind that it is highly unlikely that land settlement can solve the overall land tenure problem in Ethiopia, though it could conceivably relieve pressures in small individual areas. There has also been discussion of experimenting with resettlement of nomads in an area of the Awash. In the long run the nomads will, of course, represent a very major socio-economic problem for the country. The sooner techniques are developed for understanding the problems and the solutions to the nomad question, the sooner effective programs can be pursued. Work in the Awash valley would offer an opportunity for experimentation in a number of areas, including irrigation and multiple cropping, some forms stock raising, production of oil seeds, fruit and vegetable growing and the operational potential 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 an administrative and development unit parallel to that of the ADA district. These represent extremely complex problems which should be carefully examined before making any moves.

VI. Future Visitation

In the initial invitation to visit the ADA project it was stated that this would be the first of a sequence of visits. On this trip my primary role was to draw upon my outside experience for making recommendations within the context of rural development in Ethiopia. Succeeding visits would allow me to draw on my previous 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 be useful for the following purposes. Each of these purposes is based on the assumption

that the general recommendations above would be accepted, requiring more detailed advice on some elements.

1. If the principles set forth above are accepted it would be possible to work much more closely with personnel at the project site in development of the details of the evaluation and experimentation procedure.

2. Much more specific recommendations could be made with respect to personnel requirements for pursuit of the program delineated.

3. More specific recommendations could be made with respect to the details of experimentation.

4. Some of the national policy issues which were examined in general principle on this trip could be focused upon for a more specific analysis. Recommendations could then be made for dealing with these issues.

5. A number of questions could be explored with respect to interaction between the experimentation function and the demonstration function of the project.