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AN ANALYSIS OF AGRICULTURAL DEVELOPMENT AND AGRARIAN REFORM IN PORTUGAL

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AN ANALYSIS OF AGRICULTURAL DEVELOPMENT AND AGRARIAN REFORM POSSIBILITIES IN PORTUGAL

Earl O. Heady

This report deals with the economic functioning and structure of agriculture in Portugal with emphasis on southern areas affected by the agrarian reform which converted large farms previously owned and operated by individuals to group-operated units through either cooperative farms or units of collective production (UCPs). The analysis was to emphasize the economic and not the political and sociological aspects of the problem and this approach is followed to the extent possible.

For the analysis which follows, it is assumed that in the immediate period ahead, large farms in the Alentejo and Ribatejo regions will remain under group operations of some type. Alternative forms of agrarian reform exist, including the division of large farms into small family farms. However, aside from the reserves allowed previous owners and operators who do possess the necessary capital and technical skills for farming, this possibility probably never existed in the 1970s in Portugal. The alternative was absent under the pressure of the time because, had the large farms been partitioned into many small ones, (a) small-scale farm equipment for operation on a large number of small units was not sufficiently available, and (b) the laborers who performed the major work on the large farms and who were the potential small farmers (i.e., who became the members and labor force of the cooperatives or UCPs formed

from the estates) did not have sufficient managerial experience technical knowledge or capital to operate a large number of small family farms. For the same reasons, we expect group-operated units to continue to be the major structure in the immediate period ahead. Within this structure, however, there is opportunity for the large units to shift between cooperative farms and UCPs.

Status and Progress of Agrarian Reform

The new agrarian reform law passed during the summer of 1977 is too recent for evaluation of its implementation and comparison of its results with agrarian reform structures in other countries. The new law gives former owners and operators rights to a portion (reserve) of their previous farms equal to 70,000 points. Claim of these reserves is just being initiated and the extent to which they will be exercized (or be able to be exercized) is yet unknown. Also uncertain is the extent that previous owners will be able to acquire machinery and livestock and put their reserves in full operation.

Group operation of large farms as cooperatives and UCPs is only in the second full year and results thus far have been confounded with weather variations and start-up complexities of group operation. Real income in the Alentejo region dropped in 1975 and again in 1976 under the transition from private farming to collective operations and some fluctuations in weather. Results for 1977 are not yet known. Some transition is taking place between cooperatives and UCPs and it is not yet apparent

which will come to dominate. In these respects, agriculture in the region is in a state of flux. It can go in any direction and its orientation to small family farms (through exercise of claims to reserves), true cooperative farms or UCPs depend especially on (a) the manner and extent to which the new agrarian reform law is enforced (e.g., the extent to which reserve claimants are intimidated and do or do not exercize their claims), (b) the vigor and speed with which different organizations take a program to the groups operating the large farms, sufficiently explain it to them and activate it, (c) a clear set of rules or statutes is established defining the role, function and property rights of members of cooperatives and UCPs, the professional training and experience required for management personnel of group-operated farms, selection methods for management personnel and the responsibility of management to members, and other operating facets, (d) the clear conversion of farm credit to production uses (in contrast to its present use partly as an unemployment compensation through the farm sector), (e) the expansion of research, extension education and service operations to allow a more rapid development, diversification and intensification of agriculture, and (f) other elements of the operational and resource framework of the farm sector.

It is likely that the majority of workers who serve as members of cooperatives and UCPs do not understand the differences and potentials of the two types of organizations. Neither do they understand the broader economic and policy requirements needed to speed the improvement of agriculture, other potentials in unemployment compensation (as compared

to having it financed through farm credit provided to UCPs and cooperatives) and other elements which are more important than the type of farm structure in improving agricultural conditions and attaining higher levels of income and certainty of employment. These distinctions and information need to be brought to all of the workers or members of cooperatives and UCPs (and not just to the managers alone).

While agricultural reform is in a state of flux and cannot readily be gauged against the farm structure of other countries, the agrarian reform law passed by Parliament in the summer of 1977 provides potentials for the future. It provides conditions for developing an agricultural sector composed of small and medium sized family farms and cooperative units from which past inequities in employment opportunities and income distribution are absent. Conditions and programs which will facilitate these attainments are summarized in following sections of this report. Agrarian reform cannot, however, solve national problems of tardy economic growth, underemployment of labor and resultant low incomes. Too much so, the workers of agriculture expect it to accomplish these things. The long-run success of agrarian reform and welfare in agriculture will depend on national economic policies which provide growth, increased employment, improved human skills and the opportunities for surplus labor now in agriculture to migrate to other sectors.

Consistent National Economic Policies

Portugal has had a long standing problem of tardy national economic growth and underemployment of labor. Underemployment and low returns to labor have prevailed for the small farm region of the north and the economy generally as well as in the large farm region of the Alentejo. Underemployment and low return to labor while concentrated especially in the farm villages of the south, has been a general economic and welfare problem in Portugal and is not unique to the south. Hence, national economic policies to promote economic growth, generate employment and provide unemployment compensation should be used as the means for solving the underemployment, unemployment and low returns to labor in the south as well as elsewhere. This approach is in contrast to ongoing activities in the region of large farms where the agricultural sector is being used as a means to solve the problem of underemployment and low returns to farm labor. In the extreme short run, given conditions as they prevail, an overage of labor may continue to be employed in the agriculture of the region. Still it must be recognized that accentuated programs of (a) national economic growth, and (b) agricultural improvement and technological transformation, will both call for a reduced work force in agriculture. Action should be initiated immediately on programs which over the long run will accomodate a transfer of labor from agriculture. Far reaching programs are required and include extended investment in education and vocational training of people in rural areas.

Focus needs to be turned immediately to broad national economic and social programs which will accomplish these ends and away from absorption of more underemployed and low income labor in the agriculture sector as is reflected in the ongoing program which effectively guarantees employment on large farms. As mentioned previously, this is an attempt to solve a broad national economic problem by the inappropriate means of the farm sector.

The structure of farming which is finally arranged in the Alentejo and Ribatejo area thus will need eventually to be able to accomodate a changing agricultural work force. Certain shifts of the farm work force currently are needed. As the large farms were occupied there was not great system in the combinations of workers, land area and land productivity. Hence, there is considerable inequality in the ratio of laborers and families to land holdings and productivity. As reserves are claimed by previous owners and operators, work or reassignment of land among cooperative and collective units and their labor forces also should take place. This reassignment process not only could bring greater equity in the ratio of laborers to land and its productivity but also could fashion sizes of cooperative farms to conform better with scale or size economies, worker incentive, agricultural productivity and farm family (i.e. families of laborers or members of cooperative units) participation in decisions and management. As mentioned elsewhere in this report cooperative farms posed for these objectives might have this

structure: The land area of each would be restricted to a level which allows attainment of the main unit cost advantages associated with major farm machines. The number of members per farm would be kept small enough so that the contribution of each to the decisions and output of the farm is apparent to him. This orientation would leave an agricultural sector made up of small family operated farms (including both the small farms already in existence and those to be created from the reserves of former owners and operators) and modest sized cooperative farms which provide sufficient income to families and provide them with incentive as active participants in the management and operation of the farms.

The structure would conform to a consistent overall national policy for the nation's agriculture. The consistent national policy would have small family farms in all regions of the country (e.g. in the north and around towns from existing small farms and in the south as rights to reserves are exercized). It also would allow cooperatives of limited size in all regions. Those in the north could continue to be fashioned as farming rings or group farming built around cooperative ownership of machinery; those in the south would prevail as modest sized cooperatives created from previous large estates.

For consistency of national agricultural policy, there also would seem to be little economic incentive or basis for the existence of both cooperative farms and UCPs. A conventional cooperative organization where the members are the owners, supply the work force, realize the profits from the farm and distribute the returns among themselves in proportion

to earnings of the farm and also according to each individual's contribution in labor and capital, would seem to have economic appeal over a UCP where the workers serve mainly as a labor force with guaranteed employment on a large farm.

Resource Mix and Needs of the Region

A large variation in land resources prevails in the region. However, if farming is adapted to soil and climatic conditions of each location, profitable operations should be possible for each. Historically, a rather extensive type of farming has been followed in the region. Capital and management inputs have been rather light while labor inputs has been rather heavy, especially on a seasonal basis. In general, a great deal of unemployment and underemployment of agricultural labor have prevailed in the region. Incomes of farm labor families have been low accordingly.

Agrarian reform to this point in time has not solved the problem of excess farm labor in the region, although it has accomplished a redistribution of income from former owners and operators of large farms to the farm work force of the region. (Income redistribution also has taken place as credit extended to group-operated large farms has been used somewhat in the manner of unemployment compensation during slack employment seasons.) The region remains too long on labor inputs and too short on inputs of capital, management and knowledge. Labor will continue to be in oversupply and underemployed until other national

economic policies generate employment opportunities and provide work skills which can draw labor out of the region's agriculture. A long-run program is necessarily implied since it involves providing more education and vocational training to persons of farm villages and the start-up of new and vigorous national economic policies. Improving the return on agricultural labor depends not only on land reform but also on altering the supply of farm labor in the region. To an extent, underemployed labor on collectively operated farms is being subsidized through agricultural credit.

For example, data from the municipalities of Evora and Viana show that in the collective sector of farming 72 percent of credit goes for salaries while in the private sector (mainly small farms) only 4 percent is so used. In contrast, the private sector uses 95 percent of its credit for farm inputs and services while the collective sector uses only 27 percent. If salary costs in the collectives were to be brought in line with those of the private sector, all credit used for salaries would need to be withdrawn from the collective sector. The small private farms are using a much greater proportion of their credit for inputs such as seeds, fertilizers, insecticides and custom services.

While olives, cork, livestock, grapes, fruits and vegetables (the latter especially on small farms and irrigated lands of the region) are important sources of income in the region, wheat has dominated land use. However, the general cropping system of the region has been fairly extensive because of the amount of pasture and fallow land used in the

rotation. There is urgent need for more research in the region. Among others problems, research should emphasize cropping systems which allow a more intensive use of land and increased diversification of commodity production and employment. Research also should emphasize the interaction of higher yielding varieties, fertilization and water conservation with the cropping system. The expanded agricultural research and extension programs to be launched in Portugal thus become extremely important inputs for improving the agriculture of the region.

Consistent with the potentials of more intensive and diversified farming in the region, more capital and management inputs will be required. Greater management inputs can result from extended programs in agricultural extension education and vocational training of farm managers. Credit programs will need to be improvement and adopted to improvements and greater intensity of farming where the latter is consistent with soil, climatic and price environments. They also will need to be better adopted to the new structure of farms including the family units created from the reserves, the cooperative farms and the UCPs. Urgency should be given to conversion of credit being extended to collective farms as a form of unemployment compensation to actual production credit.[1]

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[1]As mentioned elsewhere in this report, use of credit now being extended to farms as a form of unemployment compensation is an imperfect substitute for national programs which provide growth, generate employment and provide unemployment compensation when it is needed. Hence, the current program should be considered a temporary one to be ended as soon as possible and even now separated out as a debit against the farm sector.

Rural development possibilities

Since some farm credit is now going to support labor in seasons when work does not prevail, it would seem preferable to transfer this program of unemployment compensation out of agriculture. The same funds (plus some of the rents which might be charged cooperatives and UCPs for use of nationalized land) might well be used for rural community development programs which use labor and create employment. A special study would be needed to identify these possibilities but it might include improved educational and recreational facilities in farm villages, irrigation development where water is available and the benefit/cost ratio is favorable, general infrastructure and small rural industries, perhaps emphasizing food processing, where these are feasible.

Self reliant farms

As mentioned elsewhere the production and income of farms which have been subjected to group operation over the last two years is confounded by other variables and events. These include weather, the general confusion as large farms were converted to group-operated entities and a considerable shift in farm managers. Income results also are clouded by the fact that machinery, breeding stock and other working capital inventories were taken over with no capital outlay by the present operating groups. Not all collectively operated farms have kept sufficient records for income analysis. However, some farms which have kept records have not charged depreciation on machinery and other operating

capital. Hence, net income tends to be overstated on these farms. Also, on some units farm credit has been used to provide workers with income in periods when there is no effective employment. The possibility prevails, therefore, that those farms which have not successfully intensified, which have taken on even more laborers than previously used in farming, which are not charging depreciation and are using credit as a form of unemployment compensation, cannot be operated profitably over the long run.

While farms are not likely to be self reliant under these conditions, resources of the region will allow them to be profitable under other conditions. While there is considerable variation by location, land class and climatic conditions, budgets estimated in the Ministry of Agriculture and Fisheries suggest that even an individual farm of 70,000 points can be large enough to allow a reasonable farm family income. Larger cooperatives which are operated on a scale to realize cost economies attached to farm machinery, and to give adequate family income to members (or to maximize return per member if this is the goal) can be economically viable if their plans are adapted to their resources and market prices, technologies are adopted which are consistent with resource prices and natural resources, efficient management is employed, the labor force is geared to the actual work needs of the farm, and members are remunerated in a manner to promote incentive and productivity of labor. In a later section of this report, we outline procedures which can be used to assure appropriate records and farm planning, qualified

managers oriented to farming and worker incentive and productivity. However, without these procedures, the collectively operated farms may be used for other purposes but never attain their potential in productivity and income. Concentration on farm structure as a political mechanism must be shifted to one of concentration on structure as an economic mechanism which promotes efficiency and attains acceptable incomes of families.[1]

While the proposition now is repetitive, farming efficiency and profitability of collectively operated units also depends partly on drawing surplus labor out of agriculture in the long run. Also, we state again that collectively operated farms should not be used as the major means of solving problems of underemployment and unemployment compensation. These elements are intermixed with other objectives of collectively operated farms. These problems must be solved through national economic policies, and not through farms and farm policies alone. Farming cannot be fully profitable as long as it carried these burdens.

Labor Force and Productivity

Portugal now has a mixed tenure system with a system of small farms operating in the north and around larger population centers, small and

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[1]For example, nearly U.S. $2 million of grain payments in 1976 went to four unions rather than to the farms and workers which produced the grain. Also, technicians, managers and farm workers have been displaced by outside political organizations because they refused to take part in acts of politics or violence.

medium sized farms to be created by exercise of reserves, cooperative farms and UCPs. Many nations have agriculture successfully operating under mixed farm sizes and tenure systems. Examples are the: U.S. and Canada where small and medium size farms prevail simultaneously (with very few multi-employed large farms), Poland with nearly 80 percent of its land area operated by small farmers and about 20 percent by large state farms, Hungary with about equal numbers of state and collective farms (but few of them), the U.S., Canada, England and Western European countries with owned and rented farms operated side by side, and various other mixtures. In these mixed size and tenure systems, no particular system has dominated farming productivity and efficiency within a country.

No farm organization per se guarantees a productive and profitable organization of agriculture; instead the institutional and economic framework around agriculture does so. If we evaluate farming efficiency relative to the productivity and returns of the labor and capital used in it, we find countries such as Japan, the U.S. and Canada to be outstanding. None is organized specifically around very large or very small units; none is organized around particular state organizations or tenure systems. It is not the existence of a particular state organization that guarantees a productive and profitable agriculture. It is these and related conditions: the generation of improved technical knowledge and the communication of it to farms; the investment of capital in the skills of people who till and manage the farms; the availability of capital and inputs used in farming at favorable real prices; the existence of

favorable and certain commodity prices and markets; the existence of a tenure system encouraging profits and incentive to the farmer who operates efficiently; the presence of a general economic environment which provides employment for labor replaced from agriculture; etc. These conditions generally have prevailed in North America, Japan, Taiwan, West Germany, Denmark and Holland under systems of efficient and relatively small family farms.

Portuguese agriculture long suffered two major burdens. One was the relatively low productivity of the sector, caused partly by unfavorable agro-climatic conditions and partly by an unfavorable economic-institutional environment. The second problem was that of low incomes and unemployment or underemployment for a large portion of the labor force which had its principal employment in agriculture.[1] To some extent underemployment and low income of many people associated with agriculture, particularly seasonal wage workers, was a result of the institutional organization of agriculture. However, the basic cause of the problem goes further and deeper than the previous institutional and property structure of agriculture and must be solved over time by means other than agrarian reform. The basic cause is the rather low state of economic development of the Portugese economy. Historically, this low state

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[1]While an inequitable distribution of land ownership and agricultural income distribution prevailed, the root cause of low labor productivity and income in agriculture was the surplus of labor in agriculture and lack of employment opportunities in other sectors.

caused too few jobs to be created so that generally many people lived with low incomes in unemployment or underemployment. The relative surplus labor force thus "backed up" into agriculture where its excessive numbers caused supply to be large relative to demand and the marginal productivity of farm workers to be low. Wages and incomes of worker families in Portugal generally were low.

Worldwide, the agricultural work force of less developed countries has low returns. The problem of low farm labor income in India and Bangladesh will not be solved mainly over time through agricultural reorganization. Instead, it will be solved through general economic development which creates off-farm jobs to draw labor out of agriculture where it is in oversupply. Similarly in Portugal, land reform can provide some respite in low returns to agricultural labor in the sense of income and wealth redistribution. However, it will not provide solutions to the long-run problem of a low state of national economic development which causes too few nonfarm jobs to be created so that farm labor is unable to migrate to other higher paying jobs. Nor will it solve the problem of under-investment in education and vocational training in agricultural regions which prevents farm labor from migrating to realize the higher returns of employment elsewhere in Europe. The creation of cooperative farms and UCPs does not create conditions favorable to an inflow into agriculture of underemployed and low paid workers from other sectors. In the longer run, as Portugese agriculture is improved and modernized, the flow of labor must be in the other direction; namely, from agriculture

where labor with few skills is backed up in the traditional sector with little opportunity to claim the higher returns of more skilled workers in other sectors.

To insert more outside labor into agriculture, as in the 1974 occupation of farms, can only provide a short-run accommodation of underemployed persons not previously in farming. As it increases an agricultural labor supply which already is overly large, it only accentuates the cause of low labor returns due to too many workers. Further, if cooperative farms and UCPs are put on an accurate accounting basis, as is recommended elsewhere in this report, those units with an excess of labor will bear an unnecessary farm expense actually representing unemployment compensation for persons from outside of agriculture. Income and productivity of these farms will appear depressed accordingly.

A second long-run prerequisite, following national economic growth which creates employment opportunities to farm labor now backed up in rural regions, is improvement of technical skills and education for people in rural areas so that they have equal opportunity with others in greater job opportunities eventually created by economic growth, both in and outside of Portugal. Starting from a low state of growth, Portugal has considerable "catching up" to do. The basis of low income, and underemployment, for both rural and nonrural families, will be solved through these avenues in the long run, rather than through agrarian reform. The agrarian reform measures immediately helps resolve deep and long-standing inequities in income distribution, a second major problem which

has prevailed throughout the Portugese economy (and might have been solved earlier by more progressive taxation, widespread social programs directed to the unemployed and underskilled and broader educational and training programs). However, it does not solve the income distribution problem as this relates to the availability of employment throughout the entire economy.

Farm Accounting Systems

Very soon a systematic accounting system must be developed for cooperative farms and UCPs. These accounts should include all cash flows and indicate the productive farming purposes for which capital and credit are used. As near as possible the overall accounting system should be broken down by enterprise accounts so that the profitability of each enterprise can be determined. Records should be kept in sufficient detail that the reasons why specific enterprises are or are not profitable, use too much or too little labor employ improved technologies, etc., can be identified. The accounts should include both beginning-of-year and end-of-year inventories for all physical commodities and resources and other assets so that (a) all properties are accounted for, and (b) earnings can be computed on an accrual basis, including depreciation and inventory increases or decreases. They should allow a year-end calculation of the profitability of the farm, with criteria of why it was more or less profitable than expected. Finally they should allow creation of a balance sheet showing the net gain or decline in the farms assets during the year.

If the enterprise accounts are kept in sufficient detail, it will be possible to compute various efficiency factors indicating how effectively each farm uses its labor, machinery, capital and land. These efficiency criteria can serve as the basis for improved planning and agricultural productivity in the following year.

As labor costs are charged to the specific enterprises and the farm as a whole, the assessment of labor productivity can be facilitated. Farms which have absorbed outside or excess labor as a political expedient will be disadvantaged in income and resource productivity and have an unfavorable comparison with farms which have meshed labor use closely with the farm tasks to be accomplished. In any case, the labor records will provide the basis for incentive wage payments to encourage labor productivity and provide a basis for evaluating labor needs and organization.

Labor record and conversions

For collective units it is important that over the long run labor be paid according co its productivity. Simple payment of a flat weekly or monthly amount regardless of the type and effectiveness of the work is likely to lead to reduced effort and disinterest in work. Productivity will decline accordingly. Labor productivity promises to be highest when workers are paid according to their marginal productivity. Marginal productivity is affected especially by the type of work performed, the manner with which it is tackled and the machinery or equipment with labor

is aided. Marginal productivity ordinarily is highest for tasks requiring high skills and for which fewer workers are available; it is lowest where labor supplies are larger and unskilled.

To assure that cooperative and collective farms use labor in the most productive manner, records need to be established indicating the amount of time each worker devotes to each task and the relative productivity of the process. This procedure assumes that use of farm credit and cash flows to compensate unemployed labor will cease and that the burden of unemployment compensation will be turned to the general social and welfare accounts of the national economy.

Simultaneously, accounting systems also should be developed for small and medium sized private farms. The purpose will be somewhat different, however. The primary objective will be to help the smaller private farms to use their resources most efficiently for the benefit of both the farm family and the nation. For the larger cooperative and collective farms which manage large amounts of the public's resources, accountability is required not only to assure efficiency and income improvement of persons employed on these farms but also to provide the most efficient use of these public resources.

The records for the cooperative and collective farms should become the domain of the nation. Analysis then can be made of the types of farm and organizations of farms which are furthering the two major goals of (a) improving labor and farm productivity and income, and (b) efficiently meeting Portugal's domestic and export demands for agricultural

products. They also should provide criteria to evaluate when farms should be enlarged, reduced in size or otherwise reorganized to mesh with scale economies and diseconomies, cost advantages and variation in resource qualities leading to specialization within farms.

Planning Facilities

Portugal is in need of an enlarged price and planning policy for agriculture. Extended price policy is needed to guide resource use and commodity production. It also is needed to assure reasonable returns for labor and other agricultural resources so that growth in food supplies is encouraged and improved farm technologies are realized. Forward guarantees on prices can serve to provide certainty for investment and planting of major crops. Finally, farm inputs and technologies must be priced favorable relative to output if growth in food supplies is to be encouraged and technologies which favor the absorption or release of agricultural labor are to be encouraged.

As an element of the planning - price policy program, a farm planning service should be established immediately in each major district of the agrarian reform. (These later could be extended in conjunction with the expanded extension education programs in the North and other regions.) Each cooperative then could submit its basic plan to the planning office. The plan, with modification, could serve as the basis for short-term and intermediate-term credit. One function of the plan review would be to check conformance of the plan with needs in national

commodity supplies. Another function would be to review its consistency with newly developed and adapted technology consistent with the soils and climate of the farm location. A final function would be to test the plan against the optimality of the farms objectives in terms of its resource restraints and production possibilities. Modern planning methods of simplified nature (e.g. linear programming) can be implemented by computer at low-cost and designate the one of many alternative plans which can exist for a single farm. The planning service could provide this function for cooperative farms after the cooperative had submitted its tentative plan and basic data. Of the alternative plans generated by the planning service, the cooperative could select the one representing the best compromise between its objectives, resource availabilities, and other conditions.

The planning service also could be used for determining the optimal redistribution of land among cooperatives after small and medium farmers have claimed their reserves. Typically the area and configuration of previous estates was historic and not based on any system. They were considerably heterogeneous in the extent of soils adapted to cereals, grazing, forestry and tree crops, vegetables, etc. These configurations remained after the large farms were occupied. Modern planning devices could indicate how a group of holdings might be reorganized and subdivided into cooperative farms units so that they are optimal in terms of criteria such as (a) use of technology, (b) efficient use of machinery and capital,

(c) eveness of employment throughout the year, and (d) equitable distribution of income. Too, these reorganizations could correct the inequities which now exist in land/labor ratios. There was no systematic plan in the occupation of large farms. Consequently, some farms are too heavily stocked with labor relative to land and other resources and the earning capacity of the farm; others have a smaller concentration of labor relative to the quantity and quality of resources management. Important planning is necessary to remove these inequities and create a structure of cooperatives and small and medium farms which are productive, profitable and otherwise viable.

Personnel Qualification and Selection

The selection of appropriately qualified managers, technical and other personnel is important in a rapid development of successful cooperative farms. In hastily performed agrarian reforms where political personnel have been assigned the technical management of farms, progress has been slow as compared to those where political considerations bore no importance and managers, technical advisers and supervisers were selected on the basis of their experience, training and technical competence. For these reasons, a job description should be written describing the functions, technical qualifications and training for all positions such as farm managers and technicians. Obviously, the size of many cooperatives will not justify employment of specialized technicians. However, one specialist may cover several cooperative and small and

medium farms through a district (regional) extension or planning office and his qualifications should be of quality as high as if he were the single technical specialist on a large-scale cooperative.

Job descriptions specifying technical qualifications, training and experience of farm positions should be completed soon with personnel assignments arranged accordingly. If the basic purpose of cooperative farms and UCP's is to promote farm productivity and higher incomes of workers, speed in defining and filling managerial and technical positions with qualified personnel is of great urgency.

The Rules, Framework and Regulation of Cooperatives and Collectives

Immediate effort should be devoted to conceptualizing the structure and operating framework of cooperatives and UCPs. Currently, great heterogeneity exists within each category. In the small sample visited, the members of cooperative farms did not seem to view themselves as members of a producer's cooperative in the usual sense. Instead they viewed themselves as workers on a farm now owned by the government. Their conceptualization as members with direct or indirect role in management and other functions is small; the farm is simply a place where they work with greater continuity and certainty than previously. Apparently, the same is true for UCPs. While the 5-man committee or commission may lookup itself as a management and/or political body related integrally to a particular farm unit, the UCP members view the farm as a government property where they are assured of work and that

is their prime relationship to it. Members of cooperative farms and UCPs are simply workers who suffered the hardships of low income previously, now have somewhat greater employment opportunity and greater continuity of income on a farm owned by the government. But they understand little else about the potential prevalence of ownership rights, actual shares in a farm unit in which they participate in profits according to their magnitude or other interrelationships between themselves as individuals and the farm as a producing entity. Little is known about who is legally eligible for membership in a specific unit or on what basis; nothing is known about whether one gains property rights in a cooperative and whether these might have market value upon termination of a member's association with the individual cooperative. Specific rules do not exist for defining cessation of an individual's association with a cooperative or UCP. Incentive payments generally do not prevail for workers who excell at a particular job.

Conceptual system and procedures

A special division of the Secretario de Estago de Estruturacoo Agraria of the Ministry of Agriculture and Fisheries should be established to think through the conceptual framework of cooperatives (especially in the Alentejo and Ribatejo regions but also even in those areas where small farms may be joined in producers cooperatives). Questions to be answered are: What will be the legal boundaries to each cooperative? Under what conditions and at what economic terms can it acquire more or dispose of existing land? What are its rights in use of water for irrigation?

By what criteria is a person eligible to be a member or worker of a particular cooperative? Does he have a share of property rights in livestock, machinery and other production capital of the unit? If so, how are these defined and how is compensation made upon dissolation of the member and the cooperative? Does a retiring member have rights to pension funds through the cooperative or are these to be incorporated into the national social security system? Will cooperatives ever be organized with members remunerated on a basis other than wages? If members eventually are allowed to divide profits, who will decide how much profit to distribute and how much to reinvest? Does a member acquire title in profit reinvested? Is membership of a husband and wife joint or separate? If it is joint does the other inherit all or a share of a membership upon death of a spouse? If a membership represents property rights or has value, do nonfarm heirs (or heirs who are members of a different cooperative) inherit these values upon death of a member? In the case of marriage by a cooperative member, does the new spouse automatically become a member of this cooperative--or under what costs and conditions? What is the nature of membership transfer or acquisition upon marriage of persons from two different cooperatives? How does a cooperative determine what its number of members will be and can it (and under what conditions) hire seasonal labor to supplement the work of members? Under technical advances which reduce the labor required for farming (as is the long-run case), how will it be determined by how much and when the cooperative membership will be reduced? Which members will

be disassociated and to what compensation are they eligible? Will membership in a cooperative be allowed to grow as sons and daughters of present members become of working age? Do they automatically become members with property rights? To what extent is the cooperative responsible for the housing of members and will this be provided on an allowance (if living off the farm) or fee (if living on the farm) basis? If they make improvements to their houses in the farm, are members entitled to compensation for them upon disassociation of membership?

Resolution of these questions and other issues are important and urgent if persons now on cooperatives are to view themselves as vigorous members of a farm enterprise which they can help lift to renewed heights of productivity and profitability. These issues should be resolved in a manner which rewards productivity and pride of the member in the cooperative. Resolution should be in a manner to increase certainty of higher return from extended work efforts by the individual worker and greater profits of the cooperative.

Worker incentive is a problem in both cooperatives and UCPs. The current structure of wages and the guarantee of monthly wages through government agricultural credit is a procedure which encourages this outcome. All of the small sample of cooperative and UCP managers interviewed emphasized an existing problem of worker incentive.

Number of members per cooperative

No firm principle or criterion for the number of members per cooperative now prevails. It is important that some principle be developed.

There are various criteria which could be used in establishing the number of members per cooperative. One unique number will give maximum productivity and hence maximum return per worker if the latter is the goal of the cooperative. Another goal could be maximum employment per cooperative. But this criterion also could give the minimum return per worker or member. Another goal could be the number of workers the cooperative will absorb to allow a given level of income per family. Hence, it is important that criteria be established for number of members per cooperative.

Capital accumulation and distribution of farm benefits among members

If cooperatives are to become organizations other than state farms upon which agriculturalists are employed, a method of payment must be established which compensates the individual according to his work (its degree of productivity or disutility) and relative to the profits of the farm for a given period. Associated with the distribution of the farm profits is the question of the internal generation of farm capital. The part of farm profit not distributed to members at year's end thus can be reinvested to enlarge enterprises and increase income in later years. Cooperative members thus eventually will have a decision problem of how much current income to distribute for current consumption and how much to defer for reinvestment and later income. It is likely that national guidelines will need to be specified, with certain flexibilities afforded each individual cooperative, for these purposes.

In the pure cooperative form, returns to members could be scheduled in this manner. They could be paid a monthly amount to cover ongoing family consumer needs. Then, at the end of the production and accounting year, the remaining farm profits would be distributed as member dividends--with appropriate adjustments for (a) capital accumulation and reinvestment, and (b) differentials in quantity and productivity of labor supplied by each member.

The operating procedures of the cooperative

Certain requirements for transforming cooperative or collective farms into a systematic framework of operating units which advance technology in a manner consistent with a government infrastructure of technical assistance, extension education, farm planning, credit services and price guarantees have already been outlined. This package of services, implemented simultaneously, can take all farms in a direction and orientation decided in national plans. Without some such systems, however, cooperative, small private and collective farms will be a miscellaneous lot pushing in scattered and conflicting directions.

In addition to the service of technical assistance, extension education, farm accounts and planning, farm credit and price guarantees, cooperatives also must have a defined system of operation. This defined system will begin with the job description for the manager and technicians making up the management and administrative committee of the farm. It will define the number of persons which constitute this body, their

recommended training and/or experience and the general framework of duties which they are to perform. It might be well to recommend that each of these positions be advertised and that selection be made from among a group of qualified applicants. The relationship of this board or committee to the members of the cooperative (e.g. whether the managerial-administrative board will be made up of members from the cooperative, or whether a committee of cooperative members will select the management-administrative board from a list of qualified applicants with ratification by the total cooperative membership) also must be defined explicitly. The period of contract for managerial and technical employees must be decided in conjunction with decision of the conditions under which they become regular members of the cooperative. The concept must be established clearly as to whether (a) the members of the cooperative elect and hire the administrators and technicians of the unit on the behalf of the cooperative and its members, or (b) whether the administrative committee is a semi-autocratic group molding the direction of the members and the farm. Under conditions of democracy and cooperative conventions, the former should prevail. Under conditions of the latter, the previous landlords and estate owners have simply been replaced by a set of self appointed autocrats.

The Cooperative Code for conducting business should also state the timing and conditions of meetings called by the administrative-technical board with the cooperative members. Meetings should be called to (a) explain the annual accounts (profit and loss, income and expense, inventory changes, cash position, depreciative, net worth, etc.), (b) decide on

annual member dividends and bonuses in comparison with retention of earnings for reinvestment, (c) decide on salary structure and modification, (d) review the annual plan and obtain recommendations for its modification, (e) develop special cultural programs for the cooperative, (f) review special grievances or concerns which arise, and (g) etc.

Technicians from the agricultural extension centers should be invited to attend certain of these meetings to help explain technical materials. For example, the extension farm accountants will have helped summarize the year's records and can illustrate the strong and weak points of the year's operations. Several technicians will have been contacted in drawing up the farms plan for the upcoming year. Thus, the agronomist may help detail the reasons for the cropping system, plan varieties and fertilizer mixes and amounts specified. The farm management specialist may explain the meshing of crop and livestock for the most complete labor utilization, etc.

The important need is, of course, that cooperative and collective farms have a code of operation. Some elements of this code have been summarized above. Others also are important. If it is to have a successful and vigorous cooperative agricultural sector, the Ministry of Agriculture and Fisheries should immediately establish a subdivision for cooperative farming and specify the code for this sector.

Our discussion has had special reference to cooperatives created out of occupied farms for which former owners and tenants will be eligible for a reserve. While the common term used in this section has been

cooperative, the same principles and codes can be applied to other units of collective operation. To save space we do not repeat these needs and possibilities for cooperatives formed from small individual farms or for collectives operating on a multi-member basis.

Urgency in implementation

It is urgent that the code for cooperative farms be established and implemented immediately. The agricultural sector still operates under uncertainty which is too great. One uncertainty is that of reserves. Cooperatives and UCPs are not certain as to the extent and when reserves will be exercized. Persons eligible for reserves are uncertain as to success with which they can claim their reserve. Uncertainty also exists over the structure and conditions of agriculture which will otherwise prevail. It thus is important that the code for cooperatives, defining the role of the individual member to the cooperative and his legal relationship to it, be developed and implemented rapidly. For successful appliation of the code, it is necessary to familiarize cooperative members with the nature and concept of a cooperative and the role of the individual in it.

Objectives and Organization of Agriculture

A nation's major objectives for the agricultural sector will include (a) efficient supplying of food for domestic consumers, (b) effective use of agricultural resources and favorable incomes for people employed in farming, (c) contribution to exports and balance of payments,

and (d) general contribution to national income and welfare. As mentioned previously, these various objectives can, as is demonstrated by various agricultures of the world, be attained by a range of tenure, sizes and institutional conditions for agriculture.

The structural and institutional organization of farms does have importance in relation to the objectives of the farm, however. The objectives of the individual farm (whether small, medium or large) are rather obvious, although maximization of returns to the family will be an important or dominant objective. Similarly, the objectives of a collective unit such as a UCP or state farm can differ considerably from that of a pure cooperative. For a purely cooperative farm where all capital and land resources are held jointly, a major objective will be to maximize return per member (worker). The size of farm and the organization of labor relative to capital and land to maximize returns to members (laborers) will differ from that of a purely private, collective (where the collective is run as a single entity) or state farm. If resources are available, the cooperative, with purposes of maximizing returns per worker-member, generally will be somewhat smaller in amount of labor input and use a larger proportion of capital and land to labor than will a conventional collective, state or commercial private farm. Hence, it is important for the cooperative sector that the objectives on behalf of members be defined carefully. Maximization of returns to member workers definitely establishes a limit to the number of workers which can be absorbed by a cooperative form.

In world traditions, other differences have prevailed between conventional cooperative and collective farms. True cooperative organizations, have been based dominately on democracy resting on voting procedures of members. Hence, we expect, as a means of maintaining incentive and productivity of labor, that the members be allowed to nominate alternative candidates qualified for the managerial and technical positions of the cooperative. In contrast, the conventional collective of Eastern Europe has not been democratic in the sense of ability of members to nominate alternative officers or to vote on a management and technician slate other than that supplied by political officials.

Three characteristics tend to give cooperative members incentive to work productively. First, payment according to work performed (i.e. according to marginal productivity), rather than purely on a weekly or monthly basis without regard to performance, provides them a personal incentive. Second, if they share in the product of the cooperative in accordance to its overall productivity and profitability, they are motivated to see that its total organizational effort is effective. Finally, if they are allowed to vote on alternative slates of cooperative officers, a concept of actual ownership is created to encourage pride and productivity. Collectives lacking these characteristics in Eastern Europe have been troubled with worker incentive and have had to search for means to restore it. Lack of incentive has grown out of wage payments unrelated to productivity, massive work battalions and lack of voice in operation of farms.

These organizational and administrative arrangements are important in determining the structure of cooperatives, the number of and return to members and the degree or extent of democracy maintained. Hence, they merit early resolution.

Capital and Credit Facilities

The sudden restructuring of Portugese farms left a serious mismatching of capital, land and labor resources. Some small farms already suffered a lack of capital and the drain of credit for wage purposes on collective farms has intensified their capital problems. Considerable working capital was liquidated by former owners and the occupiers of large estates. Hence, these farms now tend to be undercapitalized even as compared to the past. Data show that a disproportionate amount of credit to collective farms is directed to wage payments rather than productive farm practices and uses. In contrast, the majority of credit on private farms is being used for production purposes. The problems of capital, credit, unemployment compensation and social welfare have become unsystematically intertwined in the Portugese farm sector. Recent figures for occupied districts show that they are using a very large amount credit per unit of Gross Agricultural Product relative to districts which are not occupied.

As mentioned previously, unemployed or underemployed and low income families indeed have claim to means which eliminate these conditions. However, the farm sector should not serve as a substitute for a broad

social program and unemployment compensation policy any more than should the pharmaceutical, restaurant or other sectors. To use the farm sector as a means of providing unemployment compensation can only distort the effectiveness in agriculture and defame its long run productivity.

For this reason both short-term production loans and longer-term investment credits should be extended in terms of their prospective returns. The planning devices outlined previously can be used to identify how much credit is needed to implement the plan, the times of the year in which it is needed, the input forms it should take and the time at which its product might be harvested and repayment of credit made. Both annual and long-run plans should be made for the farm in order that both the short-term loans for the year and the long-run investment credits can be determined.

The amount of credit needed by cooperatives will depend partly upon the amount of capital that they retain from earnings. Hence, it will be the duty of each cooperative to decide on the amount of undistributed profit from the current year which is to be reinvested for the following and subsequent years. Members must feel that they, in fact, are owners of the cooperative with a long-run and direct voice in its operations. Only thus are they likely to carefully weigh decisions on the proportions of annual income to distribute and consume now, or the amount to be saved to bring forth later and larger streams of income.

Individual farm credit

The major needs of small farms include (a) means by which they can be enlarged to provide economically viable units, (b) further possibilities for forming joint farming ventures or producing cooperatives (i.e. farming rings) if they so desire, and (c) means for developing marketing cooperatives to handle commodities produced or supplies purchased.

To promote enlargement of small farms in order that their size can be increased to levels consistent with acceptable family incomes and viable sizes in terms of cost economies, countries as Sweden, Great Britain and the Netherlands have established special farmer organizations for these purposes. As land becomes available for sale, it must be appraised and sold to the farmers organization. In turn, it can be appended to another small farm (in contrast to a typical practice where it is purchased to increase the size of a larger farm) in order that income and efficiency can be increased. If national economic growth can be brought to levels which provide sufficient nonfarm employment, it could open the opportunity for parallel procedures and increases in the size of small family farms within the region of agrarian reform. But these means of farm enlargement are needed equally or more in the north and other scattered locations.

Small farms in the Alentejo

The new agrarian reform law also poses extremely promising opportunities for small farms in the Alentejo region. It can allow them to add, until they employ up to 70,000 points in land resources, parcels drawn from

the former large estates. Their size then will allow them reasonable family incomes and to realize a greater share of the cost economies associated with modern farm technologies. A further development in small farms might be allowed through the eventual dissolution of cooperatives where the sociological and physical environments favors it. At least plans should be laid now for the time when economic growth and industrialization of Portugal (or even emmigration) will cause an increased outflow of labor from agriculture. When this outflow has sufficiently lowered the labor/land ratio, remaining members of the cooperative might be given the choice of subdividing the cooperative into small farms or remaining as a cooperative unit. In early years of cooperative farms in Poland, individual members chose to dissolve them with each farming his own identifiable land. This step extended the planning horizon of individual families who then begun making long-term investments in housing, orchards and land improvement. Poland has encouraged these individual farming operations through farmers rings which provide credit, improved inputs such as seeds, fertilizers and insecticides, technical advice and commodity contracts.

Cooperative Legal Structure and Farming Transition

A couple of decades passes quickly and early plans should be initiated to accomodate the changes which occur during this period. If economic growth and industrialization of Portugal, can be accentuated, a migration out of the farm sector will occur. Cooperatives will lose

members as older persons retire and die and younger persons are attracted to nonfarm work. Who, then, become the owners of the cooperative?

The entire structure of farming can be changed in 10 or 20 years as cooperative members die, retire and migrate. The population of the cooperative can be kept at a steady state or increased by granting membership to additional persons or to all youth born to parent members. Under the Eijdos of Mexico membership was extended to all children born within the group and land was subdivided to accomodate more members on smaller parcels of land. The result was underemployment and depressed incomes for a greater number of persons. We believe that the planning should be in the opposite direction. It should be directed to the time when migration of youth, retirement and death of older members can reduce the cooperative population to a level where its farming operations might best be subdivided into individual farming units if cooperative members so choose. This development could be one unanimous consent: Younger members could migrate to nonfarm positions which give higher returns while remaining cooperative members could select or not, depending on their economic interest and philosophy, to subdivide cooperative units into independent small farms.

Rentability of Lands

Lands which have been appropriated evidently now are the property of the nation and not of the specific groups which occupied them. This is true for UCPs and cooperatives as well as former owners and operators

who will claim their 35,000 and 70,000 point reserves. The ownership pattern thus parallels that of the Polders (the farming regions reclaimed from the North Sea) in Holland. Farmers there were given long term leases for the land they operate. These leases are long enough to promote long-run investments and improved soil productivity. The same favorable conditions can prevail in Portugal if the leasing period promotes efficient farming and relevant investments and improvements.

As part of this ownership and tenure complex, however, it is recommended that Cooperatives and UCP's, should pay rent for the land they use. The rent should be at a competitive level and conform to the quality class of land involved. By competitive, we mean the approximate rental level which would prevail if there were an open market in land sales and rentals. Traditionally, rent would have three main purposes in this setting. Its overall purpose would be to serve as an allocative mechanism causing land to be used most efficiently. Another purpose would be that of competition, to cause the most efficient forms of production and agriculture to come about. If one cooperative is inefficient, rent could be used by a more efficient cooperative to bid the land away, raise agriculture to a higher level of productivity and contribute more to employment and the gross national product. A third traditional reason for rents would be the efficient allocation of land among agricultural products. If the demand for a commodity is in short supply relative to its demand, rent for land used to produce it will be high. Conversely, products which are in large supply relative to demand will return low rents and be relatively disadvantaged.

Since, under the land ownership pattern being projected, rents will accrue to the public (government), they will result in sizeable fund to be reinvested in the further development of agriculture. While society at large should stand some of the cost of research and education which causes food to be supplied more efficiently, funds from rents of cooperative farms should have priority for these two uses. Some of these rental funds also should go into the special service such as farm accounting and planning supplied to the cooperative farms to supplement other facets of an enlarged extension education program. Other developmental investments for which rents are used could include irrigation, reclamation, forestation and other activities which provide a positive net return.

Agricultural Extension Service Research, Price Supports and Marketing Cooperatives in Relation to Agricultural Structure

A promising expansion and reorganization of agricultural extension education has been outlined and is soon to be implemented in Portugal. This new expanded extension education program and its allied services of farm planning and credit can become an important mechanism for drawing the future structure of agriculture into a desired mold. The extension service will, of course, provide the usual types of farm and household education. But with an enlarged staff, it can include farm accounting and planning specialists. Then, supplemented by farm credit services in the same location, it has great leadership and organization potential. These opportunities can be summarized as follows.

As a standard control, each cooperative farm should be required to keep the detailed set of annual accounts summarized previously. At year's end, the cooperative farm could make a simple summary of the accounts and then submit them to the accounting section of regional extension office. The regional office then could complete the detailed record analysis and summary mentioned earlier. The management and other technical specialists of the regional extension office help the cooperative develop a farm plan for the year ahead. As mentioned previously, the first tentative plan would be drawn up by the cooperative farm manager. Its final form would be generated by the regional farm management extension specialist. This plan then would serve as the basis for credit to be extended to the farm for the year. Credit from public sources would be provided only to those farms which participate in these accounting and planning activities with the regional extension office.

Hence, three requirements are linked together for the cooperative farm: the annual records, the annual plan and the annual credit supplies all integrated through the regional agricultural extension office and supplementary credit services. Any cooperative or collective farm which fails to participate in any one of these management and accounting elements would be ineligible for recommended farm credit. Also, eligibility for price guarantees on commodities also could be tied to participation in these accounting, planning and credit services of the regional agricultural offices.

The regional or provincial extension offices thus would include a package of services. Their operations would not be restricted to farm accounting, farm planning and credit supplying to cooperative and other farms. They also would perform the normal educational functions in carrying new technical and other information to farm businesses and households. This information, along with the services provided for planning, accounting and financing, will be crucial for the successful operation of both small individual farms and cooperatives. However, to avoid confusion and to indicate that education is not being subverted in relation to other functions, perhaps these entities should be called Regional Agricultural Centers. A flow chart would be constructed to show distinctions between educational and other services. The structure for marketing cooperatives also could be included in the services of the Regional Agricultural Center.

The combined accounting, planning and credit services outlined above should be initiated immediately. They provide a framework within which all units of the farm sector can be drawn into focus. Thus, they give the government systematic opportunity to guide the development and structure of the farm sector, rather than in having to respond passively to patchwork developments by individual farm groups.

Provision of these services will place a burden on the newly inaugarated agricultural extension services. However, even though they may have to be performed imperfectly under a relative scarcity of manpower, they should be initiated within the year. To ease the manpower

situation, they can be initiated on a region-by-region basis. The first regions staffed fully with these services and for these purposes could be the Alentejo and Ribatejo, perhaps followed next by the regions of concentrated small farm regions of the north.

Research intensification

Research for the Alentejo and Ribatejo provinces, or all of Portugal, will need to be intensified to promote a more intensive agriculture under the transformed agricultural systems in view. Fortunately an expansion of agricultural research is ready for implementation and can serve the purposes outlined in this section. Especially important will be study of cropping systems which make a more effective use of land than the extensive systems used in the past by large farms. Study of intensified farming systems for smaller farms also will be needed especially to allow a more complete use of labor for farms being created out of the reserves. Cropping system research will need to be integrated with that of livestock systems for utilization of feeds grown in different phases of the rotation. These systems will necessarily vary among the several land quality classes and will be important relative to the sufficiency of 70,000 point units in producing an adequate family income. In the analysis of cropping and farming systems, conventional research on improved varieties, fertilization, moisture conservation and related practices in interaction with the crop rotation schemes will be needed. To an important extent, the sufficiency of 70,000 points on each soil

capability group will depend on the development of cropping systems which both diversify and intensify farming. Both are urgently needed relative to the fallow and extensive systems of the past. For some soil capability situations, research on cropping and farming systems may indicate that something more than 70,000 points is needed for an adequate family income.

Marketing cooperatives

The emphasis on cooperatives in this report has been on farm producer cooperatives under the assumption that the future structure of Portugese agriculture will be dominated by small and medium sized individual farms and owner-member cooperative farms organized on a democratic basis. A further service should be developed over time and added to the accounting, planning and credit services already outlined. This would be the service of marketing cooperatives to facilitate marketing and bargaining processes for the products (other than wheat) produced by individual farmers and cooperatives and to handle the supplies of inputs (fertilizers, insecticides, seeds, petroleum, animal feeds, etc.) purchased and used by farms. It could be further required that membership in the marketing cooperative be contigent upon participation in the previously discussed accounting, planning and credit services. Thus farms would be provided with a full set of services related to the direction, financing and market of their activities. These services could be systematic and consistent with national goals and plans.

National Statistics and Accounting

The appropriate organization of the Ministry of Agriculture and Fisheries should provide annual summaries on agriculture as a sector and each of its structural subsectors. Conventional statistics on area planted, yield, production, exports and inputs, etc. would be reported for the entire sector. However, separate summaries also would be provided for the cooperative, small farm, medium farm, collective and other major structural subsectors represented in the industry. Statistics should include for each category the number and average area, the composition of output, the value of output, the number of persons employed, productivity per worker, land/labor and land/capital ratios, changes in inventories and asset values, changes in work force and mechanization and other parameters expressing the productivity of farm resources and the welfare of farm families for each category. Evaluation then can be made of the relative needs and progress of each structural subsector of the farm industry.

The extremely complex economic development problems, stemming from both international and domestic circumstances, have already been mentioned. These are urgent problems for solution in the years ahead if levels of development and per family income are to approach other countries of Western Europe. In economic development evaluation, however, the work force and population of the agricultural sector typically decline in relative size and absolute number as national economic growth progresses at a sufficient pace and agricultural modernization occurs. We should,

then, look forward to the time when the work force of agriculture can begin an accentuated decline.

This report does not have the overall economic developmert of Portugal as its major focus (although this development is indeed crucial to near-term and long run economic and social structure of agriculture). However, in addition to the creation of nonfarm employment for the farm population, another aspect of development is important for the total welfare and quality of life in some major agricultural areas. Rural development programs could be used to (a) disburse a larger proportion of nonfarm development over the countryside to provide increased rural area employment opportunities, (b) lessen the concentration of urban population and restrain the diseconomies of public services associated with greater population concentrations, (c) improve the infrastructure of rural areas (even including land irrigation and reclamation projects where resources exist for doing so and the net payoff is positive), and (d) increase the quality and availability of recreational, educational, medical and other human services. Life for seasonally employed, low income farm workers idle for part of the year and lacking recreational and educational opportunities has been dreary. These dreary conditions helped catalyze the occupation of large farms but will not be solved by these actions. Hence, a broad and imaginative rural development program is relevant for provinces such as the Alentejo and Ribatejo (but is not the central part of this report).

Optimization of Farm Structure and Size

The upper limit for sizes of individual farms has already been legislated (i.e. 70,000 points). It is possible that some slight upward modifications will be needed in these limits for some of the less productive class E and F lands. The research on cropping and farming systems mentioned elsewhere can help identify these situations.

While a rather consistent and systematic set of criteria have been established for the sizes of individual farms, no similar system prevails for cooperative and collective farms. Their present sizes and structures (i.e. geographic configuration, mixes of different soil groups, relative labor supplies, etc.) are historical accidents and political happenstances. They are historical in the sense that an estate had been accumulated by a private owner from inheritances and other land parcels which he had been able to aggregate as land happened to become available over time. These units varied greatly in size, configurations and structure. Since some UCPs took over several of these units on an integer basis, these collectives are similarly unhomogenous in size, productivity, configuration, soil mixtures and capital/labor mixtures. A planned and systematic agriculture should not retain these helter-skelter patterns created in the vent of newly allowed political action. Due to the inequality of resource endowments now possessed by cooperatives and UCPs, these two strata of farms should be planned formally and restructured so that they are more uniform in production potential, have the advantages of scale economies, avert the disadvantages of scale diseconomies reflected in

worker disincentive and provide equity in per capita earning opportunities of workers or members. An aggregate linear programming model for Portugal has already been prepared by the World Bank. (An updated version is in process.) While a model aggregated by regions cannot indicate the optimal number, size and configuration of cooperative and collective units, linear programming and other analytical models can do so.

For these and other reasons, a larger number of smaller cooperatives operated on a scale to attain major machine economies but small enough to maintain worker-member incentive should be created. There is a "rule of thumb" principle of how large these farms should be: their area should be great enough so that the cost curve of machine use has flattened considerably (but is not minimized) and the size of worker (member) agglomerations is not so large that worker disincentive causes labor productivity to decline and the per unit costs of labor to increase sharply.

In the small sample of managers of cooperatives and UCPs interviewed, these managers were unanimous in their stated belief that farm units should be of modest size if they were to be managed most effectively, maintain communication and interaction between workers and the management team, encourage worker incentive and maintain a reasonable supervisory burden for the chairman of the management committee. A suggested "optimal" size seemed to center around 1,500-2,000 hectares on the particular farms visited.[1]

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[1]The "best" size could be determined quantitatively only with a larger and more systematic sample and by application of appropriate quantitative methods. It would vary by land class and types of crops produced.

Available analytical and computer methods could allow indication of an optimum number and configuration of collective and cooperative units. These configurations would recognize the distribution of farms over the different land quality groups to conform with needs of crop diversification, increased farming intensity, risk aversion, scale economies and worker incentives. Each unit would, as mentioned earlier, be only large enough to attain the major size economies (decline in per unit fixed costs associated with greater volume) attached to a modest degree of farm mechanization. Size would be restrained, however, to include only enough member-workers so that their efforts are not dehumanized and mechanical and all can have an effective voice in management decisions and implementation. These cooperatives would more nearly approach the farming rings of France and northern Portugal or the cooperative kibbutz of Israel, than the large state farms (collectives) of other countries. It is important that cooperative farms and UCPs in Portugal be restructured so that their size is realigned to provide more of them with an optimal distribution over soil capability groups with a larger number of persons able to partake in farm decisions and operations. This step will mean more farms of modest size in the cooperative collective subsector. A burden will be placed on the agricultural extension service in providing technical knowledge and managerial aids within this framework. A challenging Portugese agriculture can be developed within this framework of modest-sized cooperative farms where members actually participate in farm operation and management--supplemented by a subsector of small and medium

sized family farms, or vice versa. This pattern contrasts with both the ancient structure of farming in the Alentejo region of Portugal and the vast or large-sized state farms of other countries where a small and elite group serve as administrators guiding large groups of laborers who work in impersonal brigades and are insulated from management decisions.[1] A period of 10 years might be required for a system of modest sized cooperative and family farms to approach their plateau of productivity--given their recent departure from the past structure, an agricultural extension service which is just ready to be augmented and the new framework in which the nation's agriculture will operate. However, a productivity excelling that of the early 1970s could be achieved in a shorter time.

Objectives of Nationalized of Cooperative Units

A cooperative farm specifically for the welfare of the members conventionally would be organized to maximize return per member. Average productivity per unit of labor resources will be greatest at this scale of organization. Under specified conditions, this optimum size of a cooperative farm will be smaller and have higher labor productivity than a state farm which maximizes return to the collectivized unit.[2] This is another reason for realignment of cooperative farms and

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[1]The disincentive of these work brigades isolated from management has caused Hungary to experiment with an alternative work incentive plan. Under this alternative, used on a trial basis, each family is given a parcel of land to farm on a share rent basis. It is expected that is the family works hard and efficiently, it will have a larger share for both itself and the collective.

[2]For detailed explanation of these conditions, see Heady, Earl O. American Journal of Agricultural Economics. Vol. 53, 1971. pp. 17-25; and Fekete, Ferenc, Earl O. Heady, and Bob R. Holdren. Akademiai Kiado Press. Budapest, 1976. pp. 107-134.

UCPs in Portugal to a larger number of smaller units distributed more equitably and systematically among soil productivity groups. The creation of more modest sized cooperatives from the relative small number of large units now in existence will conform better with farming rings or cooperatives developed by grouping together small farms of the north. In both cases, a reasonable eventual goal would seem to be a return per family in cooperative farms which compares favorably with that of independent small and medium sized family farms to be created by the 70,000 point reserves of previous owners and the 70,000 point limit to which current small farms of the Alentejo and Ribatejo regions might be increased.

Miscellaneous Problems to be Solved

Miscellaneous problems prevail and must be resolved soon to minimize conflict, uncertainty and delay in claiming reserves and raising them to a rapid state of productivity. One is to establish the boundary of the reserve immediately so that the operator is able to crop it without confusion and delay during the first season. Another problem is the reserve owner's claim to tractors, machinery and livestock from the cooperative or collective units. Some reservists claim that they have been given junked machinery and salvage livestock. Various methods of equitable division can be established.

To allow orderly claim of reserves and efficient farming on them, established laws and civil order will need to be maintained firmly and

certainty from the outset. Individuals claiming reserves already have been faced with destruction of property, vandalism, threat of bodily harm, organized protest movements and other forms of harassment. If the agrarian reform law is to be implemented in a manner leading to early productivity growth, these restraints must be prohibited.

If the agrarian reform law is interpreted literally in behalf of small farmers in the Alentejo and Ribatejo, then they also should be able to expand their units to the 70,000 point limit. Where there is a fairly large concentration of small farmers around a population center, claiming reserves by a large number of small farmers could strain the availability of nearby land by cooperative and collective units. Hence, the rules by which small farmers claim reserves should deviate from the prior claim system allowed prior owners. Also, if small farmers claim land up to a limit equivalent to 70,000 points, it does not seem reasonable that they be eligible to any machinery, livestock or other assets now existing on cooperatives and collectives. Special capital and credit needs will prevail for them accordingly.

Transition

This paper has emphasized long-run solutions to problems of farm structure, labor income and agricultural productivity. While it might seem convenient to put aside long-run needs and problems and focus only "putting out the fires of the day," Portugese agriculture will grow into a mongrel structural, social and economic sector unless the foundation

is established immediately for a systematic industry meshed with its natural resources.

The transition to these long-run forms is difficult because of the traditions, levels of education and expectations prevailing in the region of agrarian reform. For example, we have discussed cooperative farms in which workers would be members with actual participation in management, planning and implementation of operations and would share in profits of the farm as well as in monthly wages. But as stated earlier, few workers on collectivized units currently understand these concepts. Their level of education and technical knowledge restrains their ability to participate in management and to look upon themselves of part of the decision and operational process. Their aspirations are modest and rest mostly on the certainty and continuity of employment and income.

Since this is true, a disproportionate amount of the expanded agricultural service facilities and related services should be concentrated in the major agrarian reform region over the next 10-20 years. Final resolution of these transition problems will only come with accentuated national economic growth in nonfarm job opportunities and extended educational and retraining programs for rural people.