

VIETNAM'S 5-YEAR RURAL ECONOMIC DEVELOPMENT PLAN

--Appraisals and Recommendations

**A Special Report
prepared by
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FOREWORD

The Office of Food and Agriculture, USAID, Mission to Vietnam, requested the Economic Research Service, USDA, to appraise Vietnam's 5-Year Rural Economic Development Plan. This work was carried out under Participating Agency Service Agreement [SA/VN(AJ)103-72].

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Appraisals and Recommendations

I. INTRODUCTION

We would like, at the outset, to commend the Ministry of Land Reform & Agriculture & Fishery Development staff for the professional work they have done in bringing together the information and proposals presented in the Plan documents. We also regard with professional appreciation the vast amount of work done in preparing the commodity production and support projects. There is no doubt that this is the most ambitious and comprehensive Plan ever attempted for developing Vietnam's agriculture. The problem now is the development of strategies to assure maximum social and economic benefits from the use of scarce resources.

It is our understanding that the present Plan is subject to modification and revision as more information becomes available. We hope that what we have to say will be useful in this process. If, at times, we appear unduly critical, let us assure you that truly our intent is to be constructive and helpful.

The Assignment

Our assignment is to provide information and assistance to MLRAFD for improving planning procedures and methods with the goal of making the Plan the most effective tool possible for policy and program decisions. These decisions will relate to how scarce capital, labor, and land resources should be allocated among alternative programs and geographic areas and to the appropriate kind of policy relative to prices, taxes, imports, exports, exchange rates, credit, and tenure.

The report suggests specific steps that the planning staff of the MLRAFD, independently and in cooperation with representatives of other ministries, can undertake to increase the effectiveness of the Plan. The report suggests an analytical approach that could be used, if adequate basic data can be developed, to estimate the probable effects of alternative policies and programs on the attainment of the three objectives specified. The suggested approach also provides at least one basis for establishing priorities among proposed projects. This approach can be modified to relate agricultural policies and programs to national objectives that encompass nonagricultural as well as agricultural sectors. Steps are also proposed for expanding and strengthening the essential basic data on which the Plan depends. Finally, a table comparing prices in competing countries with recent prices in Vietnam is provided in order to facilitate analyses of the situation likely to prevail as domestic production increases beyond domestic needs. The suggested alternative pricing structure, when incorporated in the proposed analytical framework, would indicate levels at which domestic prices would need to be maintained in order to assure desired levels of production of various commodities.

We recognize that some of these steps should be initiated in the near future by the MLRAFD planning group and that others may require additional planning time before implementation. However, both short- and long-range proposals appear consistent with the expressed view that planning is to be viewed as a flexible and continuing process.

The suggestions can also guide the development of a Directorate of Agricultural Economics and Statistics. This new Directorate should be the source of economic information required for effective planning decisions. The Directorate should provide improved economic and technical information to serve as a basis for decisionmaking by (1) Government officials responsible for agricultural development plans, policies, and programs; and (2) private industry, including farmers and the many people concerned with marketing agricultural products and distributing agricultural inputs. The Economic Research Service (ERS) of the U.S. Department of Agriculture, where we work, is the economic intelligence agency for the Secretary's Office and the program agencies of the Department. ERS does not make agricultural policy. This is done by the Congress, our Secretary, and other high officials of the executive departments. However, ERS does provide data and analyses that are used by officials in formulating agricultural policy. We think the Directorate of Agricultural Economics and Statistics should carry out functions similar to those performed by ERS.

Finally, the team believes that the analyses suggested, if carried out, will provide quantitative measures of the contribution of agricultural development to the economic welfare of the entire Nation that would fully justify the allocation of scarce resources and the establishment of supporting programs necessary for the development of agriculture.

Importance of Agriculture

Vietnam's future economic growth obviously will depend heavily upon the economic growth of agriculture. Agriculture now accounts for a major part of all economic activity. There is relatively little industrial development, and that which exists depends heavily upon raw materials from agriculture. Vietnam has few mineral resources and no developed petroleum resources. However, Vietnam does have great potential for expanding agricultural production. In order to achieve economic growth and become financially self-supporting, Vietnam will need to produce more farm, forestry, and fishery products to supply its rapidly growing population and to attain necessary export earnings for the importation of capital goods and raw materials essential for accelerating both agricultural and industrial development. In order for agriculture to become the "engine" that stimulates this economic growth, ways must be found to economically increase agricultural output and efficiency. Scarce resources must, of course, be used where they contribute most to national output. However, at its present stage of economic development, Vietnam has much larger potentials for increasing output in agriculture than in other sectors. Optimum economic growth will require that scarce resources be allocated to agriculture in accordance with its ability to compete economically with other sectors.

Considering the importance of agriculture to the total economy, the financial resources made available to MLRAFD seem to us to be abysmally low. The MLRAFD must be able to employ the most-talented and best-trained people in the country, and, in order to retain such employees, they must be adequately rewarded for their work. We agree wholeheartedly with the projected plans for increased financial support for more research and educational work and for upgrading the staff of the MLRAFD. We also believe agriculture, defined broadly to include marketing and processing of agricultural products and the supplying of production requisites, should be given much higher priority than it now has in making allocations of scarce capital and labor for development purposes.

Although the essential role of agriculture in the general economic development of Vietnam doubtlessly is quite clear to many, obtaining adequate support for developing agriculture probably will require more complete and detailed proof of its contribution than now exists. The development of such proof should receive very high priority in future development of the Plan.

II. ANALYSIS OF MAJOR ELEMENTS OF PRESENT PLANS

Objectives

The Plan's three major objectives are:

1. Achieve self-sufficiency in agricultural products at least in regard to staple commodities.
2. Increase national income and raise incomes of rural people.
3. Improve foreign exchange position by reducing agricultural imports and expanding agricultural exports.

These objectives or goals are clear and specific. However, the relation of these objectives to the goals and objectives for development of the total economy needs to be considered and consistency within these national goals and objectives determined. Also, it should be recognized that the objectives established for agriculture may not always be compatible with each other and therefore that maximization of each simultaneously may not be possible. For example, to require that Vietnam be self-sufficient even in the production of staple commodities may involve production costs that exceed costs of these items abroad and thereby restrict national income to a level below its potential. Conversely, concentration on the production of commodities for which Vietnam has a relative comparative advantage would maximize income and minimize the foreign exchange problem, but would sacrifice attainment of the self-sufficiency objective.

Overall national self-sufficiency in agricultural products may be economically desirable if this is defined as expanding total agricultural production so that the total value of agricultural exports exceeds the total value of agricultural imports. Viewed in this context, the decision to export or import is based on an analysis of the productivity of resources employed in alternative enterprises. Production decisions based on such analyses usually result in higher output and productivity than a simple decision to expand exports and reduce imports. This latter type of decision may appear desirable, but it usually limits the extent to which national incomes and incomes of rural people can be increased.

Improvement of incomes, especially those of rural people, is a meritorious goal. But, given the present situation in Vietnam, where increases in production and incomes are closely tied to increased use of capital (which in turn must come either from savings and foregone consumption of the Vietnamese people themselves or from external sources) it seems very difficult, if not impossible, to rapidly and simultaneously increase both real incomes and output in the next 5 years. It appears that some trade-off must take place between rate of increase in per capita real income and rate of capital growth to support the increase in output.

The foregoing discussion is not to suggest that any of the objectives specified, or others that might be posed because of political or social considerations, are inappropriate simply because it conflicts with maximizing some economic objective. It is recognized that establishment of such conflicting objectives or goals often is necessary. It is suggested, however, that all objectives or goals be analyzed to determine the nature and extent of trade-offs required in the attainment of anyone.

Policies

The plan specifies three board policies to achieve goals and objectives. They are:

1. Diversification to provide production required for self-sufficiency and larger exports.
2. Intensification of agricultural production to achieve optimum yields.
3. Modernization through adoption of new technology and mechanization.

Diversification of production is desirable in order to reduce risk due to crop failure or price variations or to achieve fuller use of land, labor, and other resources in different areas of Vietnam and thereby expand total agricultural output. However, diversification to achieve self-sufficiency, either nationally or in individual provinces, by producing crops not well adapted for specific soil and climate conditions in Vietnam would reduce the total value of agricultural output. Furthermore, it may be that Vietnam needs to specialize in the export of relatively few agricultural products in order to maximize export earnings and rural incomes. Therefore, while agricultural diversification is desirable, care needs to be taken in deciding how and where diversification occurs.

Intensification of agricultural production to achieve higher yields is also very desirable, but analysis is needed first to determine the appropriate kind and degree of intensification. Higher yields per hectare and higher levels of output per animal unit will be economic only if they can be achieved by introducing improved varieties of crops and breeds of livestock and poultry or by doing other things that expand output without disproportionate increases in costs.

Modernization that takes advantage of improved seeds, better livestock breeds, diseases and pest control devices and similar improvements in cultural practices that require relatively little capital and pay high returns to investment appear to be economic. However, as with intensification, analysis of costs and returns of these modern farming methods are needed to determine how and where they would be appropriate and to determine whether they should be included in the Plan. This is particularly true relative to mechanization for it seems doubtful, unless there is a major increase in

nonagricultural development to greatly increase the demand for labor, that much substitution of mechanical power for draft animals or human labor will be economic in the next few years. As pointed out in some of the individual commodity reports, mechanization of farming operations would require large immediate outlays for imports of tractors and equipment and continuing expenditures of scarce foreign exchange for replacement parts and fuel.

Assumptions and Preconditions

Some of the assumptions or preconditions that appear to have been used in developing the Plan are listed and briefly discussed below. We feel that these are critical and that they need to be identified and included as a part of the Plan.

1. Yield-responses to specific levels of inputs and combinations of improved practices are known; or stated another way, the bundle of practices and amounts of inputs required to produce the yields specified for the various crops listed in the Plan are known. In order to project production for the various crops from 1970 to 1975, it is necessary to state the specific quantities of inputs that are to be used per hectare and the specific yield levels that will result. However, it is quite unlikely that the same yield response will result in all parts of the country from equal use of inputs. For example, it is known that crop response to fertilizer varies from province to province and even within provinces. Therefore, it is preferable to obtain an independent estimate of input and yield levels for each province or smaller geographic unit and to sum these to get national totals or averages. It is recognized that, for immediate planning purposes, data or estimates already available must be used, however, it is important to recognize that input response data need to be analyzed to determine the level of inputs and corresponding yield levels that will result in the greatest net income to farmers rather than accept and use estimates of inputs to maximize yields. Also, as input and product prices change, the appropriate level of inputs and, in turn, yields will also change.
2. Lack of capital goods will not constrain production increases. This assumes that such items as fertilizer, improved seeds, pesticides, tractors and implements, spare parts, or fuel will be available at the time and place they are needed. In the case of fertilizer, for example, distribution facilities will need to be expanded to handle around 1 million tons, or double the present quantity distributed.

That these capital goods will be available when and as needed is a necessary assumption, but it is a reasonable assumption only if plans and systems for adequate distribution facilities and programs are provided. As revised, the Plan should give greater consideration to the steps to assure that the kinds and amounts of capital goods needed will, in fact, be available at the times and places required.

3. Machinery and labor required to carry out water control projects and bring new land under cultivation will be available. The Plan anticipates that irrigation, drainage, and flood control will be improved on most of the presently irrigated area and that a substantial additional area will be brought under cultivation. This projection must be realized if projected production is to be achieved as scheduled. Unless plans are made to identify the specific areas that are to be developed, to specify the sources of funds and methods of financing to be used, and to establish work schedules for completion of these programs, this assumption appears to be unrealistic.
4. Labor supplies will not act as a constraint on expanding agricultural production. Although information on labor reportedly was developed as background, the Plan documents do not include projections of labor requirements for farming, fishery, forestry, and related services. Labor demands from other sectors should be considered in determining supplies to be available to agriculture. The quantities of agricultural labor required to meet production goals under different levels of technology needs to be given explicit attention. If the industrial sector does not grow rapidly enough to absorb people returning from military service as peace expands, agriculture will have to absorb them. If this should occur, it would greatly lessen or eliminate the need for an expanded mechanization program. On the other hand, if there is a sufficiently rapid growth in the industrial sector to absorb those returning from war activities, a chronic labor shortage could develop in agriculture and higher rates of mechanization would be required to expand agriculture rapidly.
5. Marketing facilities for processing, storage, and transportation to handle additional output will be available as needed. This is a key area where the MLRAFD must play an increased advisory role. Quite possibly the Ministry must also be prepared to provide or assure capital loans during early stages of development. The problem is that current systems and facilities for processing, storing, and transportation are barely adequate for handling current levels of production and flows of farm inputs. These levels are scheduled to increase rapidly even during the early stages of the Plan. But farmer associations, cooperatives, and private operators cannot be expected to be able to withdraw operating capital from their current business in order to provide investment capital for new facilities to handle the increased level of production scheduled in the Plan. Their problem is actually threefold: They are (1) unaware of forthcoming increases, (2) unfamiliar with processing requirements, and (3) unable to afford new facilities until after gaining higher income from increased production.

This problem is evident, for instance, in the Banana Project. This project states that a private sector investment of 125 million piasters is required to process bananas for export, some 50,000 MT of bananas in the first year of the Plan. As with other projects, unless plans are made to specify marketing facilities that need to be constructed or improved, the source of funds and methods of financing, and provision made for training operators of new equipment, it is unlikely that the required facilities and skills will materialize.

6. Farmers can sell all of their projected production at the prices assumed. This means that either (a) domestic demand will increase sufficiently to absorb all production or (b) the excess supply can be exported to foreign markets in such a manner that there will be no decrease in prices received by farmers. Increased domestic demand will result from population growth and from increases in real per capita income that would permit higher per capita levels of consumption. The Plan projects a 2.6 percent growth in population, but does not make clear the assumptions on per capita income growth that would be necessary to support the projected increase in per capita consumption of a number of commodities without a sharp fall in price. The assumptions regarding income should be made explicit and the basis for the assumption documented.

Likewise, it is questionable whether export markets can be found for Vietnamese agricultural products at prices projected in the Plan. At existing exchange rates, prices for many possible export products are above those paid by importing countries. Therefore, if the assumption of farmers being able to sell all their output at the prices assumed in the Plan is to be valid, exports can occur only if subsidies are paid or exchange rates are modified. If either or both of these are to occur, the Plan needs to take the fiscal aspects of these into account.

7. Foreign exchange earnings can be maximized through programs aimed at export expansion and import substitution. This assumption is at least partially based on the idea that commodities exported before the war can again be profitably exported and that new products can also be profitably exported at the farm prices used in the Plan. However, as indicated in 6 above, the projected prices to farmers for many commodities are higher than prices at which Vietnam can reasonably export these products. Also, implicit in the Plan is the assumption that import substitution is inherently a good policy. Consideration should be given to the possibility that net foreign exchange earnings may be greater by using resources to produce for export those products having a relative advantage and importing those products with a lesser advantage.

8. Programs to increase agricultural production will be given high priority in allocating scarce capital and labor among sectors. Two comments need to be made here. The first refers to the need to consider returns from programs in both the agricultural and nonagricultural sectors. The fact that agriculture is the major sector is not in itself sufficient justification for its receiving a major share of scarce capital and other resources. Overall economic development, and in turn agricultural development, will occur at a faster rate if scarce resources are allocated to those programs that have the highest long-run payoff relative to achieving stated national goals, irrespective of what sector they are in. We think that under these terms the agricultural sector including marketing would receive the major share of resources, but we think it improper to assume this without the benefit of analysis that demonstrates that this is the best course of action. Secondly, just as comparisons need to be made between farm and nonfarm investment opportunities, comparisons also need to be made to rates of return to various kinds of investments within the agricultural sector, particularly those related to production as distinct from those related to improvements in the processing, storage, and transportation facilities for marketing farm products.

Our impression is that not enough attention, either in terms of analysis or allocation of resources, has been given to this aspect. However, no decisions, other than to do more work in this area, should be based on this impression. These issues should be clarified in order (1) to identify projects with greatest national and rural income potential and (2) to justify priority consideration as agriculture competes with other sectors for support and funding.

Goals

The projected 13 percent annual growth rate for Vietnam's agricultural sector represents a most ambitious target--no other country appears to have recorded such a high level of sustained growth for a 5-year period, although several have shown remarkable production increases following periods of national disaster. The United Nations Food and Agriculture Organization reports that Israel attained a record annual growth rate of slightly higher than 6 percent during the period 1957-70, but this was sustained largely through import of feed supplies which permitted large increases in meat production. Few countries have sustained annual agricultural growth rates of 5 percent for any number of years. A record of representative growth rates can be noted in Annex A.

Several countries have endured major crises and have evidenced remarkable rates of recovery prior to resuming typical rates of national growth. However, differentiating between recovery rates and development rates seems essential. Taiwan, for example, endured a 55 percent drop in output during World War II. In the postwar recovery period of 1945-52, Taiwan was able to repair many basic agricultural and irrigation facilities; agricultural output recovered at a rate of 12 percent per year. After major recovery was achieved, however, it was only possible to increase annual growth at 4 to 5 percent during 1952-65 and at 3 percent during 1966-70.

Vietnam, through extraordinary effort, already has reversed the declining trend in food production and thus may be beyond the early recovery period that would parallel the period of most rapid recovery in Taiwan. Few would deny that increasing rice production from 4.3 million tons in 1967-68 to 5.7 million tons last year represents an outstanding world achievement. This record alone proves that Vietnam has the spirit and essentials for rapidly expanding national production. The Plan, however, covers a very wide range of production and support projects; the Plan also assumes a series of events affecting each project which must take place in order to achieve a world record rate of 13 percent annual growth for 5 consecutive years. If this series of assumptions or preconditions do not prevail, Vietnam's growth rate may well drop to 5-6 percent, or even lower. The assumptions or preconditions which appear necessary for realization of the great potential to expand agricultural production in Vietnam were discussed in some detail in the preceding section. Many of these assumptions or preconditions are unlikely to prevail in the actual world in which the Plan must be developed. Therefore, the production goals for many crops appear larger than can be achieved in the 1971-75 period.

Conditions or events that appear most likely to restrict attainment of the goals in the years immediately ahead include:

1. The probability that improved technology cannot be adapted rapidly enough to increase yields for most crops to projected levels.
2. Limitations of human resources (labor), capital, and particularly foreign exchange which will limit expansion of agricultural output.
3. Marketing facilities and institutions cannot be improved and expanded soon enough to prevent their lack from becoming a bottleneck to production expansion.
4. Market outlets, domestic and foreign, will not expand enough to absorb an increased volume of production except at sharply lower prices.

The restrictions are likely to affect different enterprises in different ways. However, in the team's opinion, the difference between actual conditions prevailing during the period covered by the Plan and the preconditions or assumptions on which the Plan is based is likely to reduce the level of attained production below goals projected for most enterprises. The following

section considers some of the possible effects of various restrictions on several of the more important enterprises considered in the Plan.

Rice

1. Land area, variety, and yield: The total land area allocated to rice cultivation is reasonable, but as changes in the proportion of areas planted to HYV, improved, or traditional varieties occur it will be necessary to re-examine the yield factors assumed in the Plan. (1) As additional lands are devoted to HYV (moving from 500,000 Ha in 1970 to 950,000 Ha by 1975), marginal and average yields can be expected to decline as land is converted to this new use. (2) It is quite probable that the land converted to HYV rice during 1971-75 will be in areas which inherently are the most productive. This means that the remaining balance of land planted to traditional varieties will be that which has relatively low productivity. The research project for improving yield of traditional seed and increased use of fertilizer on such relatively marginal land may do much to alleviate a decline in average yield but it is not likely that these efforts will increase average yields to 2.3 MT/Ha, as assumed in the Plan.

Based on these considerations, the rice production estimates appear too high, perhaps by as much as 500,000 tons for the year 1975.

2. Prices: Current retail prices are higher than those used in the Plan and are higher than world trade prices while the prices cited for inputs are considerably below world prices. A realignment of product and input prices could alter producer incentives to grow rice. However, even after an adjustment has been made the next best crop production alternative may still not be competitive with rice.

3. Fertilizer: A large increase in fertilizer use has been projected, yet the source and price of fertilizer is open to question. It does not seem possible, as the Plan suggests, to rely on guano deposits from the Parcel Islands--ownership of this area is currently contested by four countries. Also, it does not seem probable in the near future that Vietnam will develop capability for manufacturing fertilizer from domestic resources. It seems desirable, however, for Vietnam to rapidly develop a capability for bulk handling, mixing, and bagging of imported fertilizer ingredients to take advantage of the estimated 33 percent saving in cost that this effort would permit. Doing so might well relieve the apparent current need for subsidizing fertilizer sales.

4. Exports: The rice volumes scheduled for export marketings consist of aromatic varieties that typically are slow maturing and have relatively low yields. Tau Huong variety, for example, has a growth period of 235 days and yield ranges from 1.7 to 2.4 HT/Ha. This rice currently retails for 90-100 P/Kg in Saigon, a price equal to \$363 per ton at an exchange rate of 275:1 or \$274 per ton

a 365:1. It is questionable whether (a) there is a significant world market for rice at this price and (b) farmers could gain greater income by producing alternative shorter-season and higher-yielding crops.

Feed Grains

1. Demand: Obviously there is an increasing demand for livestock feeds. But factors such as opportunity costs for feed grain producers and alternative choices for feeders will determine whether livestock will be fed rice and other traditional feeds or (b) shifted to corn and sorghum in formulated feeds.
2. Production: Feed grain production does not seem economically feasible during seasons and in areas where it must compete for land that could also be planted to HYV rice. With the prices and yields assumed in the Plan, feed grains may have a production advantage in particular areas where water supply conditions prevent growing either successive or high yielding crops of rice. For instance, sorghum reportedly can be grown successfully in traditional floating-rice areas during the dry season and sorghum and corn might produce better returns than rice in Highland areas. Whether either of these events will take place will depend largely on developing (a) favorable price relationships and (b) opportunity for farmers to acquire the inputs and level of technology assumed in the Plan.

Animal Husbandry Development

1. Production: Projected growth rates of 9 to 15 percent for livestock and poultry production seem high, but are generally in line with growth rates achieved in recent years. Three major restraints seem probable, however: (1) Feed supplies projected in the feed grain and rice production project plus projected imports do not appear adequate to support the animal production growth rates. The Plan should also give more attention to determining protein supplement requirements. Also, it seems most advisable to investigate use by current feed factories of rice and rice byproducts in formulated feeds. (2) Mortality has been a serious factor in livestock production and we are pleased to note tables in the Animal Husbandry Development Program on pages 37 and 50 that indicate a 161 percent increase in vaccine production. However, the tables on page 39 and 51 appear to indicate a disproportionately low utilization of these supplies. We strongly recommend development of material that would indicate the relationship between vaccine use and disease eradication or control. It may well be that increased use of relatively inexpensive vaccines represents an opportune way of achieving production goals and increased producer income. (3) Consumer incomes may not increase to sufficient levels to afford purchase of the increased per capita availability of meats and eggs. If per capita consumer incomes are restrained or reduced,

this would pose a serious challenge to attaining the goals of this production project, as well as others that show increased per capita consumption.

2. Data Base: Interviews with professional staff members who wrote the Animal Husbandry Development Program reveal that the base population numbers and production factors for these numbers may not accurately reflect true conditions in Vietnam. This is largely due to the difficult task of surveying domestic animals and deriving reproduction estimates. Nonetheless, it appears mandatory to review these figures and provide accurate data for the DAH staff and other MLRAFD planners.
3. Export: Reviewers were surprised to note that the Plan does not assume exportation of meat and eggs, foods which are traded extensively throughout the Southeast Area. Further, trade in these products has been increasing in recent years and is expected to increase further in response to higher regional incomes and increasing preferences for protein foods. To enter trade in these products would require considerable improvement in domestic meat processing and storage facilities, but these will be required to service Vietnam's domestic marketings in the foreseeable future. Current price levels for meat and eggs deter taking advantage of current export opportunities, but this should not preclude consideration in the Plan relationships that would permit entrance to this lucrative trade potential.
4. Fishery Development Program Byproducts: Page 22 of this report briefly discusses fish meal production and domestic requirements. DAH staff planners might well wish to coordinate their feed acquisition projections with representatives in the Fisheries Directorate.

Fishery

1. Production: Annual production increases of 11 to 14 percent appear high but attainable if the large investments cited in the Plan for boats and equipment are made available. Investment is a major precondition to achieving domestic and export goals and shortage or delay in funding would prevent attaining these goals.
2. Consumption: The 33 kg per capita consumption estimate for 1975 is low in comparison with some other Asian countries. However, this amount of protein meat plus a parallel increase in swine and poultry production appears to be higher than might reasonably be expected to be consumed. The major question is whether personal incomes will rise at such a rate that consumers will be able to afford the total projected increase in consumption of expensive protein foods.

3. Exports: The rate of export increases appear to move more rapidly than could be accommodated by improved marketing and processing facilities. It is questionable, too, whether markets for the 750,000 tons of fish scheduled for export in the Plan could be located.

Bananas

1. Production: The assumption that banana yields can be increased from 9.5 MT/Ha to 20-25 MT/Ha should be re-examined to determine if such an increase is realistic and whether domestic and export goals can actually be met. A serious problem also arises when noting the need to switch from production of Su banana varieties to Gia varieties. This requires development of nursery stocks and time delays as new stock becomes available to producers that have not been adequately taken into account.
2. Consumption: The projected 70 percent increase in per capita consumption of bananas (from a reported 10.5 kg to 18 kg) appears high. If current availability is a true expression of domestic demand, then the projected production targets are overestimated. Resolving this problem will also necessitate reviewing the production input requirements.
3. Exports: The export volumes appear reasonable but the prices assumed in the Plan appear to be substantially lower than recent trade prices. Prices may be expected to vary according to variety and quality, but conditions cited in the Plan indicate that Vietnam's exports should be quite acceptable to world markets.

Attention needs to be given to establishment of the Banana Export Association mentioned on pages 15, 17, and 22. This organization will plan a key role in marketing and developing processing facilities. Until it comes into existence and assures producers of a fair price for high quality bananas, it is doubtful whether producers will switch to the required new varieties or invest in the inputs required to attain export goals.

Rubber

Production: Rubber has been and will continue to be an important source of export earnings. However, at the time analysis was prepared, there was some confusion as to whether national development would be guided by the REDP Rubber Project report or the report prepared independently by the Rubber Research Institute of Vietnam. The REDP Project identifies a structure approach to development that the industry could use to attain production goals; the Research Institute's report does not present data that would allow cost/benefit analysis or determination of export earnings.

Sugarcane

1. Production: The increase in yield to 50 tons per hectare by 1973 depends on irrigation projects being in service by that time and that producers will shift to using a high level of inputs. Physical limitations might well prevent developing irrigation works so rapidly and prices and price relationships in sugar might discourage greatly increased use of inputs. Also, if sugarcane yields do not increase, producers might obtain greater returns through production of alternative crops.
2. Processing: Improving current and developing new processing factories is a key element to expanding sugarcane production. These facilities must be completed parallel to expansion of production or both marketing and producer incentive will be impaired.

Secondary Crops

Production: The area increases projected for peanuts, soybeans, mungo beans, sweetpotatoes and manioc seem modest and quite attainable. The yield increases of 30-40 percent for most of these (18 percent for peanuts) might be achieved if the high level of technology and inputs are used. The prices for secondary crops assumed in the Plan would certainly permit use of a high level of inputs, but these prices appear to be far too high. A different and more reasonable price series might permit yield increases of only 15-25 percent by 1975.

III. MAKING THE PLANNING PROCESS MORE EFFECTIVE

The Plan documents show that much work has been done to decide how to accelerate agricultural development in Vietnam. The recommendations we make here are concerned primarily with technical and economic analysis required to do an even better job in developing plans, policies, and programs and for evaluating alternative courses of action designed to accelerate agricultural development in the future.

The preceding brief review of the major elements of the 5-Year Plan has indicated several points that should be given attention in future revision of the Plan and steps to be taken to increase its effectiveness. The major points needing attention are summarized below:

1. Projections or assumptions regarding the general economy were not specified nor were the interrelationships of changes in the agricultural and nonagricultural sectors determined.
2. Possible tradeoffs among objectives and between some objectives and policies specified as means of achieving objectives.
3. Prices of inputs used in calculating costs, reflecting quite substantial subsidies of one form or another, are unlikely to be those that will prevail over the period of the Plan.
4. Prices of farm products used in calculating returns and benefits, likewise reflecting controls and subsidies, are unlikely to prevail throughout the planning period.
5. A condition necessary for fulfillment of the Plan is that capital, labor, or foreign exchange would not be limiting factors--a condition that may not prevail throughout the planning period.
6. Development of market outlets and marketing facilities and institutions necessary to move increased production is not adequately considered or provided for in the Plan.
7. Plan calls for expansion of production of a wide range of commodities without regard to the net effect upon incomes of individual farms, regions, or the Nation. Therefore, it fails to provide a basis for establishing priorities for development.

In order for the 5-Year Plan to be fully effective as a development tool and, at the same time, to provide a rational justification for allocation of the necessary capital, budget, and other resources for agricultural development, the Plan should be modified and expanded to take into account the points noted above. The following sections offer specific suggestions for such modification.

Projections or Assumptions Regarding the General Economy

Economic conditions prevailing in nonagricultural sectors will affect directly the domestic demand and prices for farm products and the supply of labor available for agricultural production and development. These non-agricultural conditions also will have an indirect, but still major, effect on the availability of capital and foreign exchange. The effect of growth in agricultural production on employment and income in nonagricultural sectors (the multiplier effects) certainly will influence the allocation of scarce resources to agricultural development.

In order to initiate the detailed analyses required for further strengthening the agricultural development Plan, assumptions or forecasts should be developed for the period covered by the Plan for at least the following general economic variables:

1. Population, including the number, growth rate, and age distribution of both rural and urban groups.
2. Employment in each major sector of the economy.
3. National income, including the source and distribution among sectors and the relation of changes in agricultural and non-agricultural incomes.
4. The general price level, extent of inflation, and exchange rates and controls.
5. Foreign economic assistance and investment.
6. Nonagricultural exports and imports.

Several studies have been made that will provide considerable assistance in developing forecasts on these items, or in formulating appropriate assumptions. Assumptions and forecasts will need to be reviewed and possibly revised each year as additional information becomes available. Simple trend projections of the statistical series on the pertinent general economic variables published annually by the National Institute of Statistics and the Agricultural Economics and Statistics Service will provide useful first approximations of the economic framework. However, it is strongly urged that the cooperation of the Ministry of Economy and other agencies of the Government engaged in planning or economic analysis be sought to assist in making more refined projections or assumptions. Additionally, members of the staff of USAID Mission or consultants obtained by the Mission can provide assistance. The studies completed or underway by the Mission can provide assistance. The studies completed or underway by the Institute of Defense Analysis under contract with the Mission on national income accounts and sector analyses are particularly useful in appraising the general economic framework. Work to be initiated jointly by ERS and the Ministry relating to demand and price analyses necessarily must incorporate the economic variables noted above. The development and maintenance of this necessary economic background information could be one of the major assignments of the proposed new Directorate of Agricultural Economics.

Analysis of Trade-Offs among Objectives and Policies

Since trade-offs among objectives often may be necessary, and since policies or programs being considered likely will contribute to attainment of different objectives at different rates, questions frequently arise as to the nature and extent of trade-offs involved. For example, a quantitative estimate should be developed of the effect of any proposed use of foreign exchange or budgeted funds upon farm and national income and the foreign exchange position. Both long- and short-run effects should be considered. Similarly, any decision to promote self-sufficiency in a particular commodity should be evaluated from the standpoint of its effects on income and foreign exchange. Many similar questions are likely to arise as implementation of the 5-Year Plan proceeds.

It is highly desirable, therefore, to develop some means of measuring the effects of alternative decisions before a final decision is made. A full and detailed analysis of all the effects of any decision will require extensive, detailed, and dependable data on a wide range of economic variables --data that are not now available and cannot be developed in a short period of time. However, useful guidelines for answering many types of questions can be developed on the basis of information already assembled, or readily available. The data needs and possible steps toward acquiring data necessary for more complete answers are discussed in the next section of this report.

One possible approach toward providing guidelines in the future development of the Plan involves the application of a relatively simple linear programming analysis. Although data could not be readily assembled from the available sources to provide an analysis including all enterprises incorporated in the Plan or to answer a wide range of questions, an example has been developed for illustrative purposes only. The example, based on 1975 projected data, includes only eight commodities--rice, peanuts, soybeans, corn, sorghum, rubber, bananas, and sugarcane. The inputs considered are fertilizers and insecticides. These inputs were assumed to be imported. The amounts of these inputs required for each crop were estimated from recommended applications. Unit values used in the analysis were derived from the value and volume summary tables in the 5-Year Plan. Domestic requirements and yields likewise were developed from the Plan documents. Total hectarages for the several crops considered were the total of the projected hectares for 1975. Rice was limited to the total shown for 1975, but hectarages for other crops were allowed to be increased up to three times the amount shown for each crop in 1975.

The example addressed itself to the question of the effect upon farm income of relaxing the requirement that all domestic demands for the eight commodities be met from domestic sources. Questions of effect on national income or employment were not considered. If all domestic needs for the eight commodities included in the example are met from domestic supplies (in accordance with the self-sufficiency objective), the results presented in Part A of table 1 would be expected. If domestic needs are met from domestic supplies and/or imports, i. e. self-sufficiency is relaxed and specialization takes place and income to farmers is optimized, the analysis indicates the results shown in Part B of table 1.

Table 1.--South Vietnam's agricultural development using prices from 5-Year Plan

Commodity	A. Self-Sufficiency				B. Specialization			
	Production	Imports	Exports	Production	Imports	Exports	Production	Exports
	1,000 Ha	1,000 tons	1,000 tons	1,000 tons	1,000 Ha	1,000 tons	1,000 tons	1,000 tons
Rice.....	--	7348.0	--	--	--	6978.6	369.4	--
High-yielding:	950.0	--	--	--	950.0	--	--	--
Traditional..	1542.6	--	--	--	1382.0	--	--	--
Peanuts.....	30.7	39.9	--	--	135.0	175.5	--	135.6
Soybeans.....	66.0	79.2	--	69.2	66.0	79.2	--	69.2
Corn.....	100.0	200.0	--	--	171.0	342.0	--	142.0
Sorghum.....	100.0	300.0	--	--	--	--	300.0	--
Rubber.....	5.45	6.0	--	--	--	--	6.0	--
Bananas.....	93.0	1782.0	--	1423.0	93.0	1782.0	--	1423.0
Sugarcane.....	101.2	5220.0	--	1787.0	192.0	9900.0	--	6467.0

	<u>Self-Sufficiency</u>	<u>Specialization</u>
	<u>\$VN Billion</u>	<u>\$VN Billion</u>
Fertilizer	15.75	16.93
Insecticide	5.54	5.89
Farm Income	162.97	170.08

Table 2.--South Vietnam's agricultural development using approximate world prices

Commodity	A. Self-Sufficiency				B. Specialization			
	Production	Imports	Exports	Production	Imports	Exports	Exports	
	1,000 Ha	1,000 tons	1,000 tons	1,000 tons	1,000 Ha	1,000 tons	1,000 tons	1,000 tons
Rice.....	--	7348.0	--	--	--	7524.0	--	175.7
High-yielding:	950.0	--	--	--	950.0	--	--	--
Traditional..:	1542.6	--	--	--	1619.0	--	--	--
Peanuts.....	30.7	39.9	--	--	135.0	175.5	--	135.6
Soybeans.....	8.33	10.0	--	--	--	--	10.0	--
Corn.....	100.0	200.0	--	--	--	--	200.0	--
Sorghum.....	100.0	300.0	--	--	--	--	300.0	--
Rubber.....	5.45	6.0	--	--	--	--	6.0	--
Bananas.....	93.0	1782.0	--	1423.0	93.0	1782.0	--	1423.0
Sugarcane.....	159.0	8193.0	--	4760.0	192.0	9900.0	--	6467.0

	<u>Self-Sufficiency</u>	<u>Specialization</u>
	<u>\$VN Billion</u>	<u>\$VN Billion</u>
Fertilizer	16.34	15.18
Insecticides	5.34	5.49
Farm Income	176.74	184.32

In this restricted agricultural development formulation, foreign exchange was maximized when farm income was maximized, and it changed under alternative policies by the same amounts as farm income changed. However, if additional sectors were included in the model, maximizing farm income need not maximize foreign exchange.

Several significant aspects are revealed by a comparison of the results from the two examples. There is the substantial increase of 7.1 billion piasters in farm income when the self-sufficiency requirement is relaxed. In the latter example, sorghum and rubber were not produced at all, and supplies sufficient to meet domestic needs had to be imported. However, exports of rice, peanuts, soybeans, bananas, corn, and sugarcane were increased by amounts large enough to pay for these imports and still result in an increase in foreign exchange.

The commodities exported would appear, on the basis of data in the Plan, to be ones for which Vietnam has a comparative economic advantage in production.

However, these results may lead one to seriously question some of the data. Why wasn't rubber in the Plan which had the highest farm income? One would think that at least some rubber would be produced. The answer may be with the excessively high yield estimates for bananas and sugarcane, which made these products comparatively more profitable than rubber.

Although the examples were developed for illustrative purposes only, the results do indicate the nature of trade-offs among objectives that might be expected. The results also suggest the need for undertaking a more detailed and complete analysis involving, if possible, all production enterprises being considered for expansion. Such analysis would require developing similar data for all enterprises on the items used in the analysis. This would involve careful review and possible correction or refinement of data for the eight commodities used in the example, also. If data on labor requirements for each enterprise are available, employment can be estimated for each situation or set of objectives analyzed. Impacts on the remainder of the economy might also be estimated if input and cost data on all marketing functions can be developed.

Programs which have been written for use on automatic data processing equipment can be used in making the suggested analysis. Technical consultants to assist in setting up and making the analysis could be obtained, if needed.

Prices

It has been pointed out previously in this report that farm input and product prices were based on recent levels in Vietnam that have been influenced by numerous subsidies, controls, and other war-created distortions. A price structure distorted in this fashion will result in a production pattern which does not optimize the use of resources. The misallocation of resources is likely to worsen as production increases and outlets must be sought in foreign markets.

Again, purely for illustrative purposes, a linear programming approach has been developed to indicate the effect of alternative pricing structures on estimates of production and farm income. This example is exactly parallel to the preceding example except that different prices were used. The prices used are intended to approximate prices prevailing in world markets somewhat more closely than do the prices used in the Plan. However, the series of alternative prices used were developed on the basis of historical world price relationships published by FAO and without an extensive investigation of current world prices. Also, no attempt was made to adjust this series to reflect cost of production in the manner done in calculating values in the Plan, since the adjustment method was not indicated in the Plan. If this approach should be used in any future evaluations in the Plan, current and prospective prices in foreign markets in which Vietnam might sell excess farm products would have to be carefully reviewed and a new series developed for use in the analysis. The value or implied prices used in the Plan would have to be modified to be comparable to the new series if comparisons of results are to be made.

The pattern between the specialization solution and the self-sufficiency solution is similar to that using the prices for the 5-Year Plan. Farm income is 7.6 billion piasters greater under specialization than under self-sufficiency. In addition, certain commodities take on import status.

The approximate world price series causes a shift in production from that using the 5-Year Plan prices. In self-sufficiency, 58,000 hectares are shifted from soybeans to sugarcane. In specialization, soybeans and corn fell out of production and the slack hectareage was used to produce traditional rice. Presentation of this example involving price series designed to approximate world price relationships is not to suggest that world prices are necessarily the prices which should be reflected to farmers in Vietnam. However, prices in foreign markets generally will determine the prices at which excess supplies will have to be exported or at which commodities not produced in Vietnam could be imported. The analytical approach could be modified slightly to indicate shadow prices at which commodities not produced would have to be supported in order to bring them into production. The costs of such supports also can be estimated.

If alternative price structures are to be developed and tested as suggested above, both domestic and foreign market prospects need to be analyzed. Price relationships among agricultural products and farm inputs generally are determined in these markets.

On the domestic side, information needs to be developed on prospective per capita income and on the effect of changes in income on consumption patterns and prices for farm products. The prospective per capita income, of course, will have to be considered in the context of the economic development of the Nation as a whole, and might be the result of the joint effort with the Ministry of Economy and others relating to assumptions or projections of general economic conditions discussed under the first item of this section of the report. Development of information on the effects of changes in per capita income on consumption and prices will require considerable additional

research, probably involving new surveys of consumers. Although such research cannot be done in time for use in the immediate future, planning for development of the studies should begin as soon as possible. In the meantime, there does not appear to be an alternative to continuing to use the available data on prices and consumption in evaluating the domestic market.

Current and prospective demand and price situation in foreign markets likewise will need to be explored. Considerable price information is published for several commodities sold in markets in Southeast and East Asia. This published series, supplemented as necessary by prices published by FAO, will provide a beginning in appraising the foreign market situation. However, as promptly as possible, it is desirable to start to develop cost data for moving commodities between Vietnam and these markets so that the foreign prices can be converted to a Vietnam equivalent. Also, the published prices should be supplemented by prices for different qualities or types of each major commodity, since the best possibilities for Vietnamese exports may be for a special quality or type that would appeal to a particular ethnic group and yield a higher return.

Foreign market price data should be supplemented by information on volumes of imports in each market, import regulations, and on potential growth of each market. As indicated, some information on foreign markets is available from published sources. A considerable portion of the remainder might be developed as a part of the USAID-sponsored study being initiated by ERS. Future information might be secured through Vietnam representatives abroad.

Capital, Labor, and Foreign Exchange

There is strong probability that shortage of either capital, labor, or foreign exchange will become a restraint on agricultural development. Development planners can seldom rely on optimum supply of these three scarce resources and consideration should be given now for establishing a basis for allocating their use in the Plan. Two approaches should be considered: (1) This is a pragmatic approach that gives quick guidelines for planning at the national level. Estimates should be made of how limitations of any input item would restrain development and how careful use of other resources could compensate and serve to optimize development. This requires accurate information on potential use of each resource required to produce one unit of the commodity requiring the inputs. Again, this approach can only serve as a guideline at the national level pending development of more sophisticated approaches. (2) A more accurate way for establishing priorities and allocating resources is a detailed linear programming approach. This will allow planning at the regional level and can be applied to smaller areas or even to individual farms. It permits making judgments where requirements are expected to differ because of different soils, water conditions, weather, etc. The method for developing a linear program is described in a section of this report concerning establishment of priorities.

Consideration of Market Outlets and
Development of Marketing Systems

The need for the development of adequate marketing facilities and institutions was noted in many of the Plan documents and has been emphasized in this report. We recognize that one reason for the limited consideration of markets and marketing systems in the Plan is the fact that responsibility for these activities rests with other agencies of the Government than MLRAFD. We recognize further that this division of responsibility at the Government level poses a serious problem in planning for these activities. We strongly feel, however, that adequate markets are absolutely essential for the success of the Plan and that steps must be taken to assure their development. These steps doubtlessly will involve joint effort with other agencies. Regardless of how organized or conducted, such steps will require certain basic information.

The development of information on potential markets has been discussed previously in relation to prices. In addition, information will need to be developed defining the least-cost combination of facilities and shipping patterns for all commodities being considered in the Plan. The least-cost combinations can be developed from data specified in the last part of the report on costs of construction and operations of various sizes and types of facilities, transportation costs, and volumes produced and consumed within each region. Optimum flows can be determined through use of a transportation minimization cost analysis; volumes moving through facilities at each location will determine minimum cost size and types of facilities. The analysis can be accomplished with the use of standardized automatic data processing programs. Again, it is suggested that, if needed, assistance in organizing the data and conducting the analysis might be requested from other Government of Vietnam agencies or quasi-public organizations or through the USAID Mission.

In addition to specifying the desirable number, size, and location of facilities for physical handling or processing farm products, attention should be given to organizing an efficient merchandising system. The Plan documents place primary responsibility for this essential function on farmers' organizations and cooperatives. In view of the present stage of development of these organizations, it is quite probable that private firms will have to be relied upon, or if such firms do not exist or cannot be encouraged to perform the task, Government agencies may have to undertake this job. It is essential, however, that whatever organization or combination of organizations are established, the farmer must have someone available to purchase his products at an equitable price at the time and place he wishes to sell. It is equally essential that consumers be assured of supplies of products at equitable prices at the time and place he wishes to purchase.

Establishing Optimum Allocations and Priorities for Use of Resources

Examples have been given in foregoing sections, using National average or total production, consumption, and price data from the REDP, showing how relevant variables, objectives, and policies can be evaluated within an organized planning framework. It was emphasized, however, that the restricted linear programming analysis suggested could be used to answer only a limited number of questions as to priorities for the optimum use of resources at the national level. It does not provide information on the optimum allocation and use of resources at the regional or individual farm level. Yet it is at these lower levels that any national Plan must be implemented. An effective national Plan, therefore, should provide guidelines for priorities based on optimum use of resources at the farm level. The optimum use of resources on all individual farms--whether optimized in terms of farm income, self-sufficiency, or any other given objective--will assure optimum allocation and use of resources for a region or for the Nation.

Supply response estimates developed for individual farms or land resource situations and aggregated to regional and national levels provide the most effective basis for full economic development planning. Development and use of the supply response estimates involve the following steps.

First, since production possibilities for various enterprises vary from area to area because of differences in soil type, climate, topography and other features, relatively uniform production regions or situations must be delineated. For each production region, measures of physical inputs and outputs must be developed for each enterprise. Prices must then be applied to these inputs and outputs to determine the most profitable enterprises for production in each region or land resource situation, taking into account the supplementary or competitive nature of each enterprise and availability of resources. As indicated in the foregoing discussion of prices, historical price relationships in Vietnam, distorted by wartime conditions, do not provide a reliable basis for evaluating relative costs and returns of different enterprises in the future.

The most efficient and effective means of organizing the above steps into a formal planning technique again is through the use of a linear programming analysis. This analysis would involve a considerably more complex formulation than the restricted model suggested for use in considering some overall national question. However, the more complex model would permit determination of the optimum commodity mix for each resource situation (applicable to an individual farm) as well as for regions or the Nation as a whole. Simultaneously, regional outputs and farm incomes could be determined for use in estimating market facility requirements. National outputs, incomes, foreign exchange impacts, and capital requirements likewise could be generated. Given information for potential new production areas, comparable to that discussed above for currently cultivated land, the effects of adding to the existing agricultural resource base could be determined.

The planning framework suggested above, given the required information, would provide information on supply response. This assumes, however, that the necessary marketing system and facilities would be available to effectively move the types and quantities of commodities specified by the Plan. The fact is, of course, that the necessary marketing system and facilities do not now exist; this lack is perhaps the major limiting factor to expansion of production of many products in Vietnam. Capital, labor, management, and foreign exchange will also be required to provide the required marketing support. Decisions made relative to marketing will also affect, and be affected by, Plan objectives and policies. Specific data and information will also be required for guiding development of the appropriate marketing system. Much of this information must be developed simultaneously, and in conjunction with the information necessary for developing supply response estimates. The requirement for marketing facilities will be largely determined by the optimum mix, quantity, and location of production. Conversely, the optimum mix, quantity, and location of production may be affected by the feasibility of providing marketing facilities. Therefore, marketing and production information should be provided for and handled within the same planning framework.

The data needed for development of the planning approach involving both supply response and marketing aspects are outlined in the following section.

Improvement of Basic Data

Having an organized framework is a necessary condition for good planning. But a good analytical framework is of no value unless the data or information requirements of the framework can be met. If the information fed into the planning system is inadequate or incorrect, the answers, or the plan, inevitably will be inadequate or incorrect. The data used in the planning system must be suitable, dependable, and comparable for the many producing and marketing situations.

Requirements for providing suitable data for developing supply response estimates are summarized below.

1. Delineate and quantify the various land resource situations for the traditional agricultural area of Vietnam.
2. Determine the enterprises that can be produced within each land resource situation.
3. Determine the physical output per hectare of each enterprise for each land resource situation for at least two levels of methods and inputs: traditional levels and recommended levels. Estimates for intermediate levels would be highly desirable.
4. Specify the inputs (fertilizer, insecticide, etc.) associated with each output determined above for each enterprise, in physical terms, not in monetary terms.

5. Apply prices to each output and input included above, that bear a reasonable and logical relationship to one another, i. e. a set of prices that are comparable for a given set of economic conditions.
6. Determine the time period during which, and the amount by which, each enterprise draws upon the land and labor resources within each land resource situation.
7. Estimate the number and size distribution of farms in each of the land resource situations.
8. Estimate the amount of land in each of the land resource situations on which productivity could be increased through various means such as drainage, irrigation, or flood control.
9. Associate enterprises with these improved productivity situations as in steps 2 through 7 above.
10. Determine the cost and capital requirements for making the improvements specified in step 8.
11. Determine the amount of additional land that could be brought into cultivation through land clearing, flood control, and other measures.
12. Delineate these additional lands into land resource situations, and associate enterprises with them, as in steps 1 through 6 above.
13. Determine the cost and capital requirements for bringing the additional land into cultivation, including requirements for settling land and adding to the infrastructure base.

Data needs for developing specifications for an appropriate marketing system include the following items:

1. Physical inputs and costs for constructing and operating storage, handling, and processing facilities for the types and volumes of commodities produced in each production region.
2. Costs of transporting each type of agricultural commodity by various methods from production to storage and/or processing points and finally to points of domestic consumption or foreign outlets.
3. Costs of merchandising and other marketing functions required to move commodities from farms to domestic consumers or foreign markets.

4. Prices comparable to farm prices mentioned in item 5 above except prevailing in domestic wholesale and retail markets and in appropriate foreign markets.
5. Recent consumption patterns for rural and urban people in various income groups.
6. Data on current or recent income levels and distribution and, if possible, projections for near future.
7. Numbers and growth rates for rural and urban populations.
8. Current and projected demands for each potential export commodity in appropriate foreign markets.

From the data above, marketing-processing costs parallel to the supply response data and applicable to each production region could be developed. Some of the data needs, such as data on population and income, can be met by data developed by other Government agencies. Some data on costs of physical handling and merchandising would have to be secured from private firms or Government agencies involved in processing and distributing farm products. However, some would have to be synthesized--particularly for some processing or other functions not currently performed in Vietnam.

Obviously, all data needed are not now available nor can they be fully developed in a short period of time. However, adequate data, either refined or reasonable approximations, could be developed in the next several months. Work being undertaken by ERS under USAID auspices will contribute substantially toward meeting these data needs for a limited number of commodities. However, these data will need to be supplemented by data on marketing of other commodities and on the general economic framework.

ANNEX A

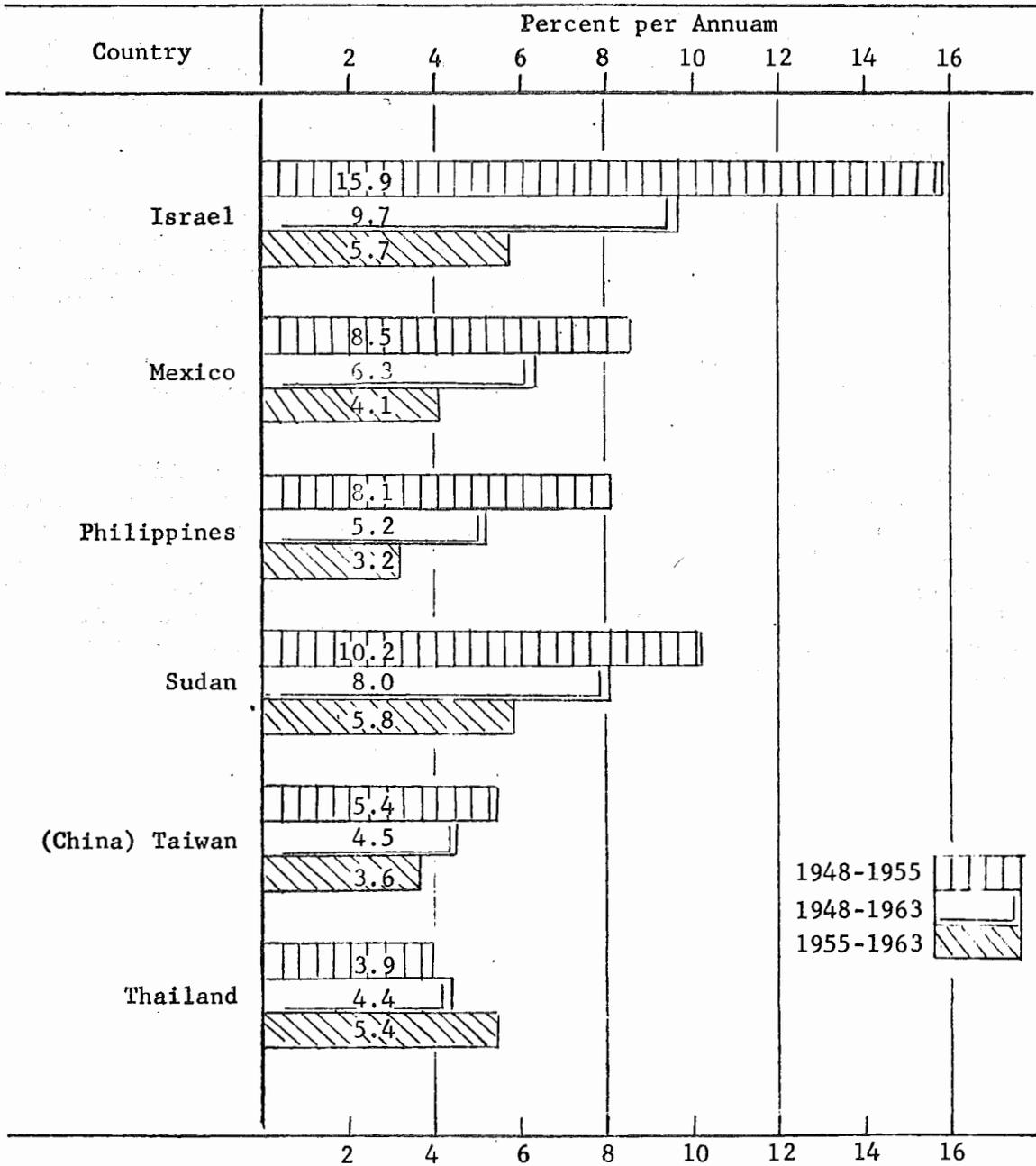
Growth Rates

The projected rate of growth of total agricultural production of 13 percent a year for the 5-year period of the Plan appears to be overly optimistic. Israel is the only country that appears to have been able to sustain high growth rates for an extended period of time. Growth rates for the most successful countries in this respect are shown in figure 1. It should be noted that after the 7-year period of fairly high growth rates, a rather rapid decrease occurred in the succeeding years.

Comparisons are often made with Taiwan. For this reason, a chart is included showing the long-term rate of growth in agricultural production in Taiwan (figure 2). Even during the rapid recovery stage after the war, output increased at slightly less than 10 percent a year. Once the recovery stage was over, the rate of increase in agricultural output dropped to about 5.4 percent a year. One needs to consider the extent to which Vietnam has already gone through the recovery stage and whether or not this stage has about been completed.

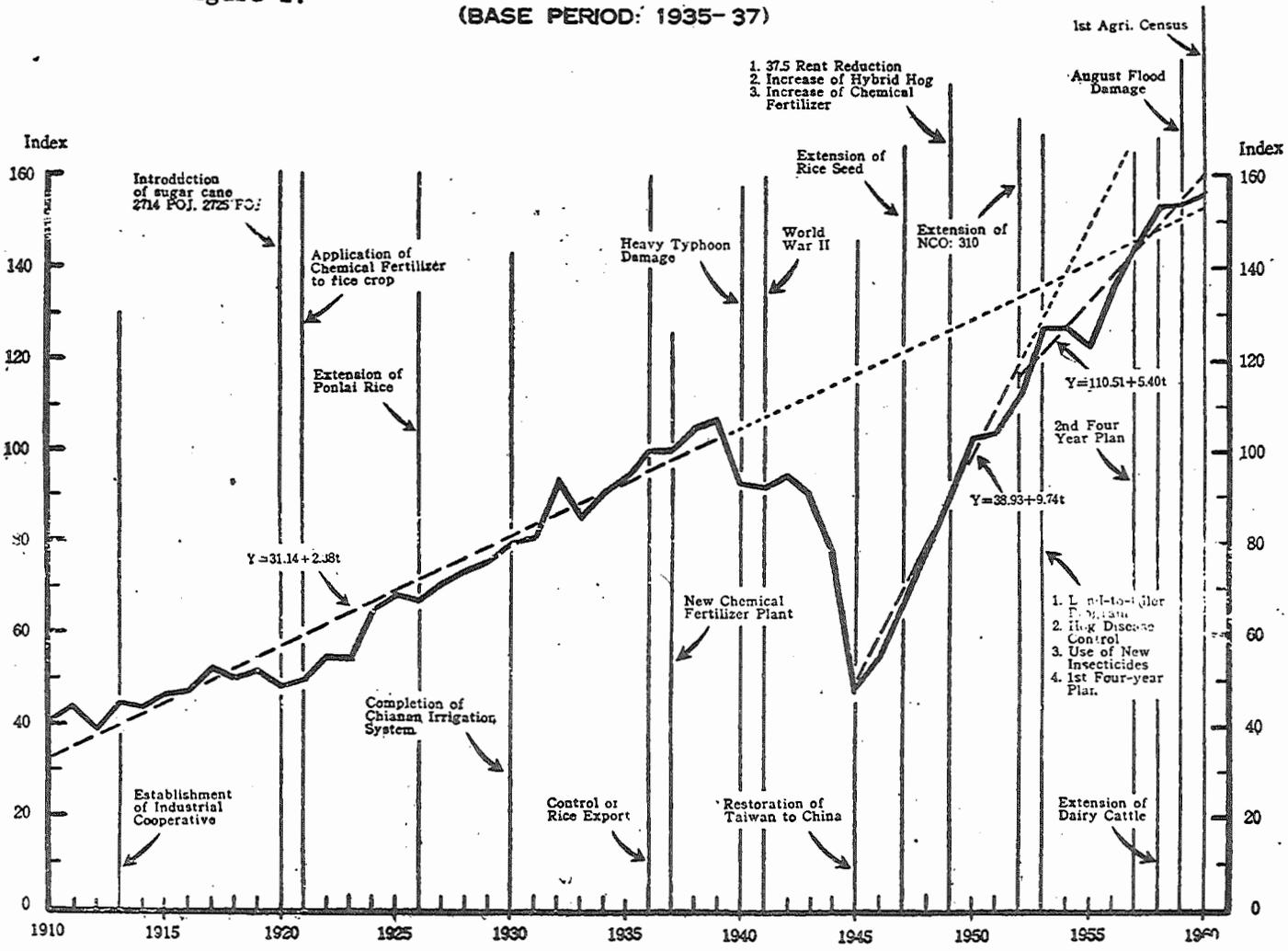
Long-term growth rates are also presented for the period 1957-70 for 19 countries to provide a general impression of what other countries have done. (Figure 3) This is not to suggest that Vietnam cannot exceed the rate of growth experienced by other countries; rather, it should suggest that higher than average growth rates can probably be attained only with the preparation of very well-thought-out development plans and an organization and administration that is capable of seeing that the plans are, in fact, executed and carried through to completion.

Annex A. Figure 1.
 Long- and Short-Run Growth Rates
 for Agricultural Crop Production in Selected
 Countries, 1948-1963



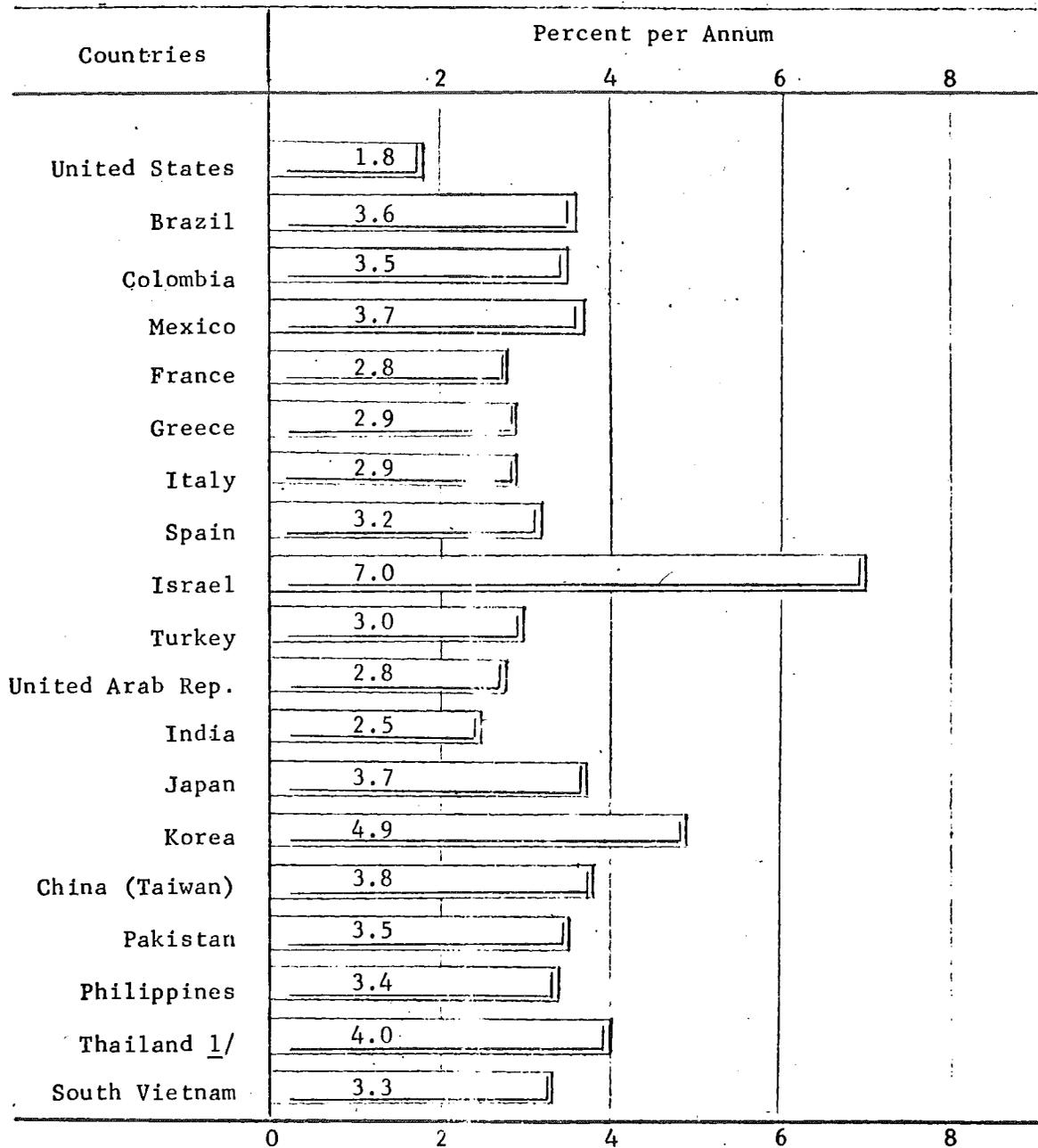
Source: Calculated from figures in Agriculture in 26 Developing Nations, Fgn. Agr. Econ. Rpt. No. 27, U.S. Dept. of Agriculture, Washington, 1965, table 4.

Annex A. Figure 2. INDEX OF AGGREGATE AGRICULTURAL OUTPUT IN TAIWAN
(BASE PERIOD: 1935-37)



Source: S. C. Hsieh and T. H. Lee, *Agricultural Development and Its Contributions to Economic Growth in Taiwan*, Chinese-American Joint Commission on Rural Reconstruction, Economic Digest Series No. 17, Taipei, Taiwan, China 1966, p. 12.

Annex A. Figure 3.
Growth Rates for Agricultural Production
in Selected Countries, 1957-1970



1/ 1961 - 1970

Source: Calculated from "FAO Index Numbers of Gross Agricultural Production", Monthly Bulletin of Agricultural Economics and Statistics (FAO: Rome, May 1971), pp. 8-28.

ANNEX B

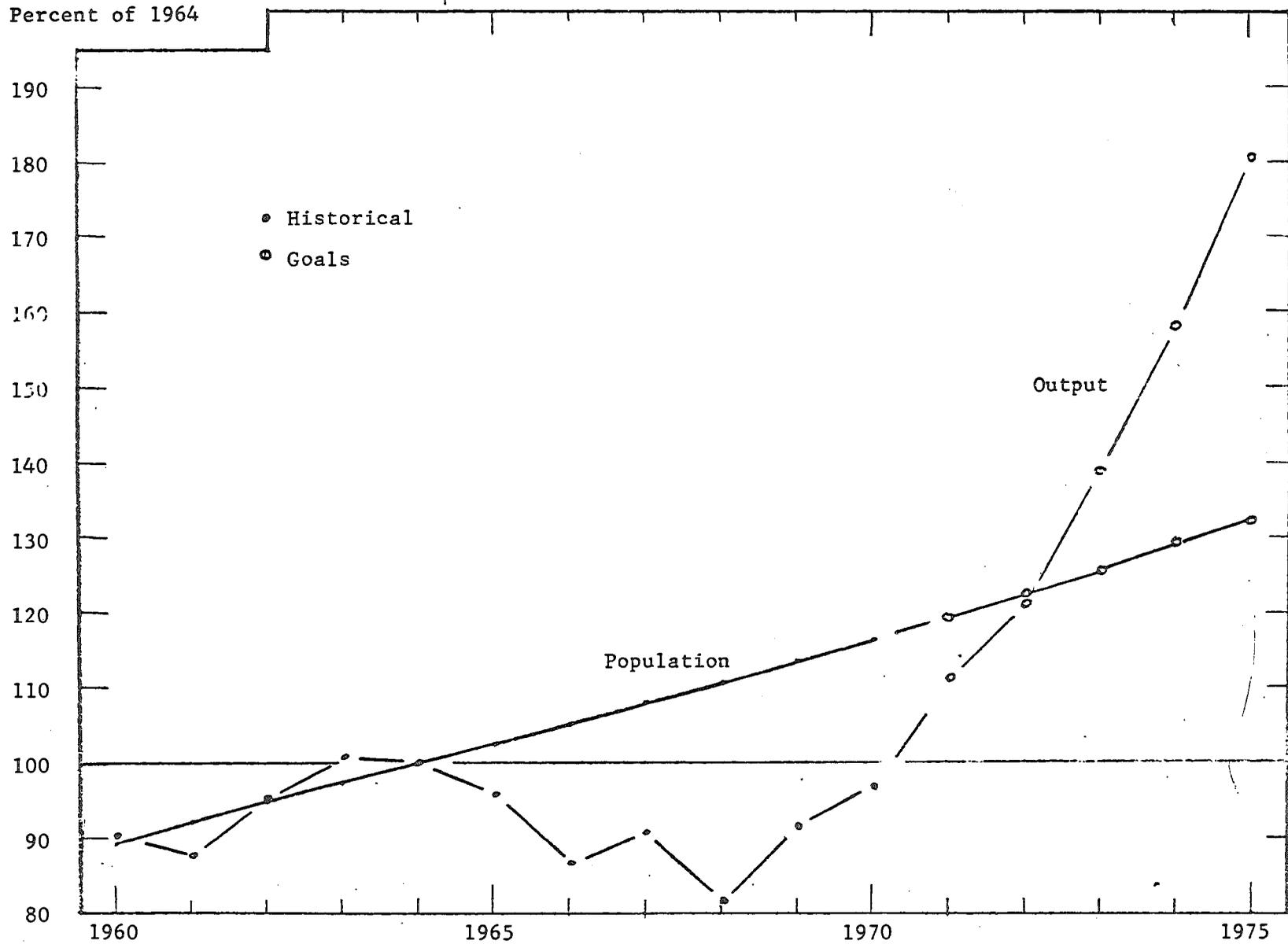
Plan Goals and Targets

The Plan estimates that the combined output of crops and animal products will rise by 86 percent between 1970 and 1975. The 1970 base of comparison represents approximately the level of agricultural production attained during the years 1962 through 1965. The expansion through 1975 is posited upon maintaining the 13 percent pace of recovery of output achieved during the interval from 1968 to 1970. Output of crops and animal products are expected to expand uniformly over the period and to stand in the same approximate balance with each other in 1975 as in recent years.

At the projected development pace, agricultural production will overtake population growth in 1973, bringing per capita production to the same level as that experienced in 1964. This also implies a return to former levels of exports. Exports must continue to increase, however, if farmers are to dispose of all of the planned for increase in output.

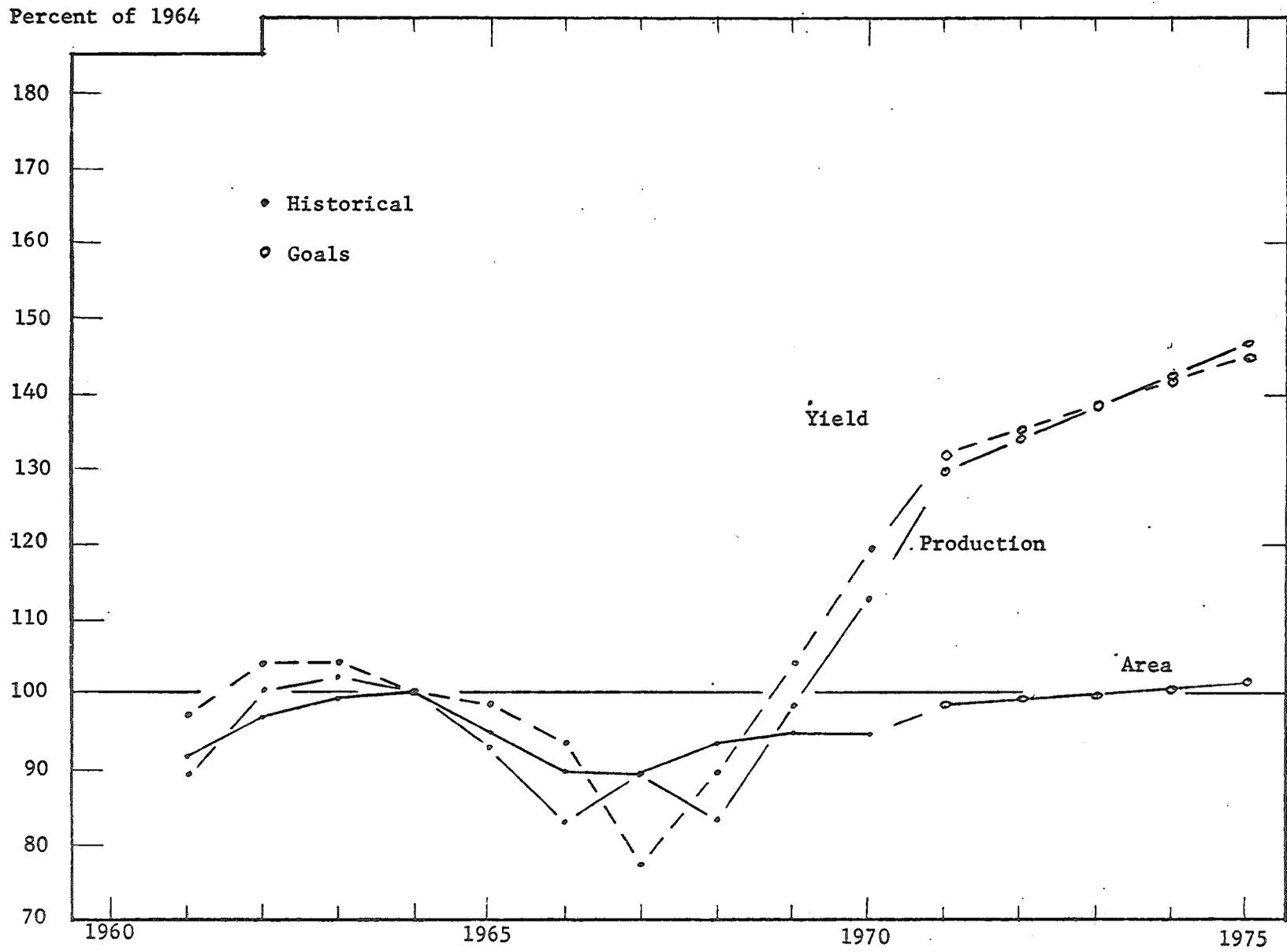
The relationship between agricultural output and population is shown in the accompanying figure 1. Historical figures through 1969 are from the Agricultural Statistics Yearbook, the change from 1969 to 1970 is based on preliminary calculations by AID-Saigon, and 1971 through 1975 are from the Plan. Population figures assume a 2.6 percent annual growth rate. There follows, then, a series of figures illustrating the development of land area, yield, and production for a number of basic agricultural products upon which the agricultural development of the country depends. The numbers are calculated from the Agricultural Development Plan and from the Agricultural Statistics Yearbook.

Annex B, Figure 1. VIETNAM: POPULATION AND AGRICULTURAL OUTPUT

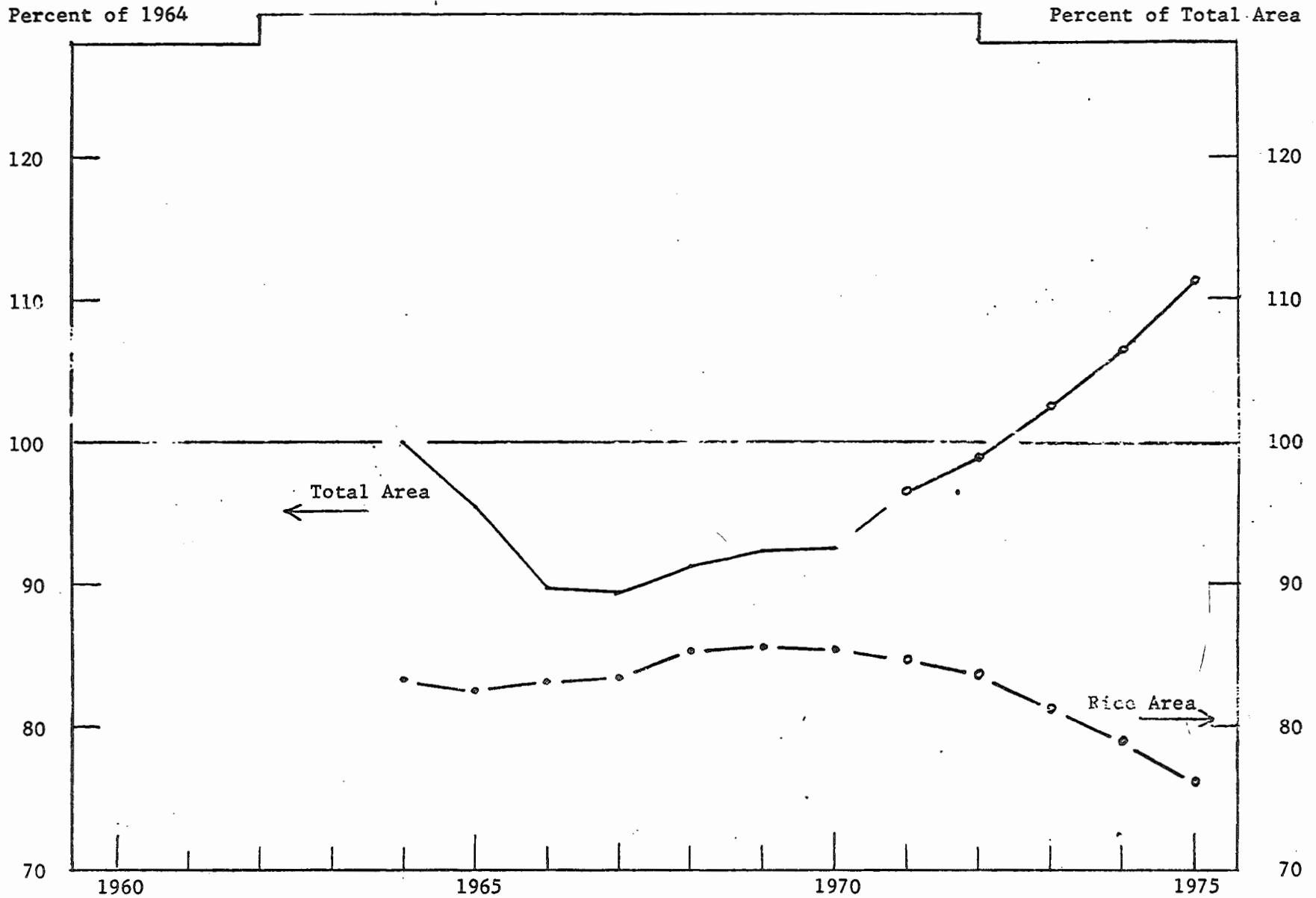


Annex B, Figure 2.

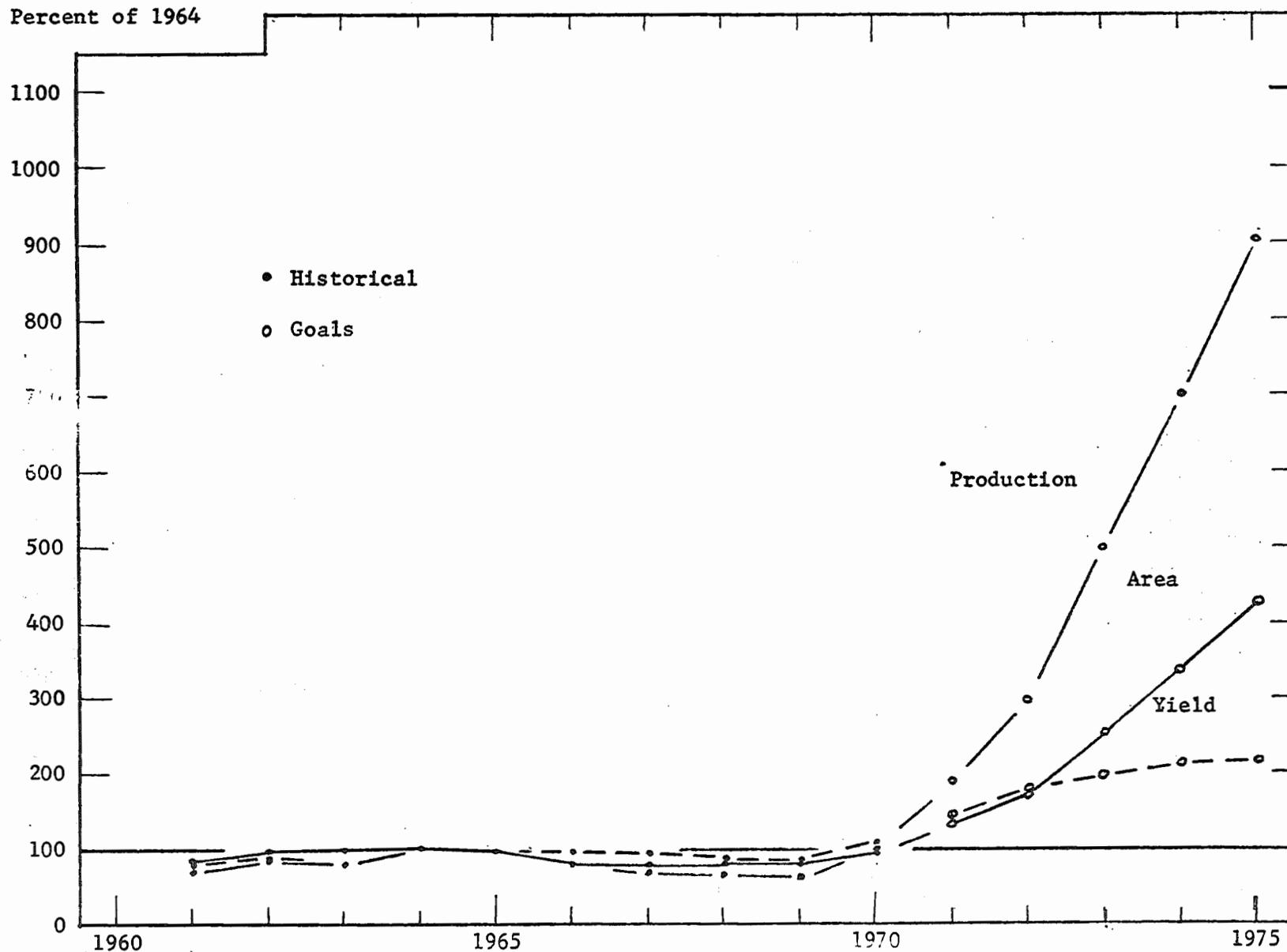
VIETNAM: AREA, PRODUCTION, AND YIELD OF RICE

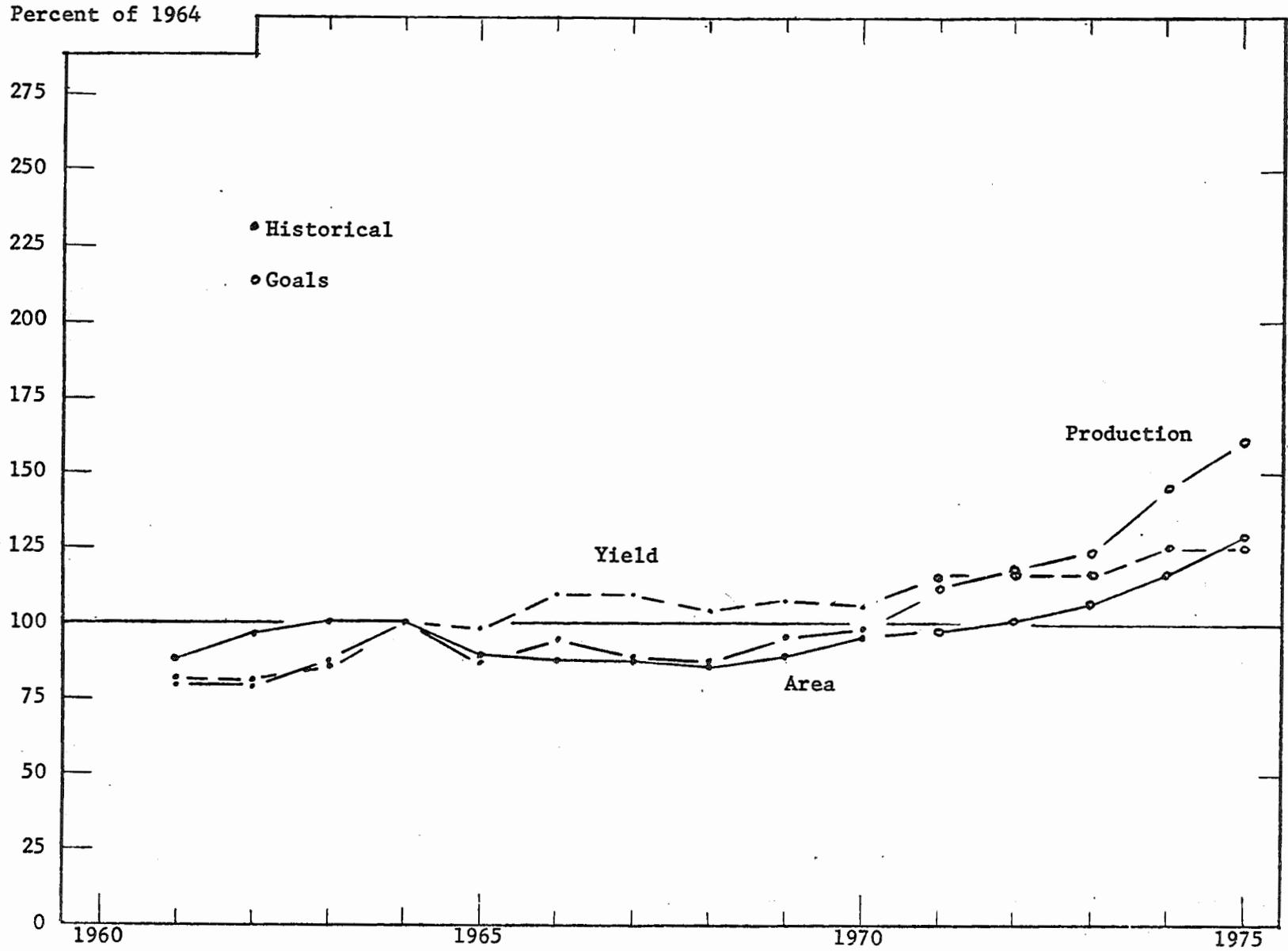


Annex B, Figure 3. Vietnam: Total Cultivated Area and the Proportion in Rice

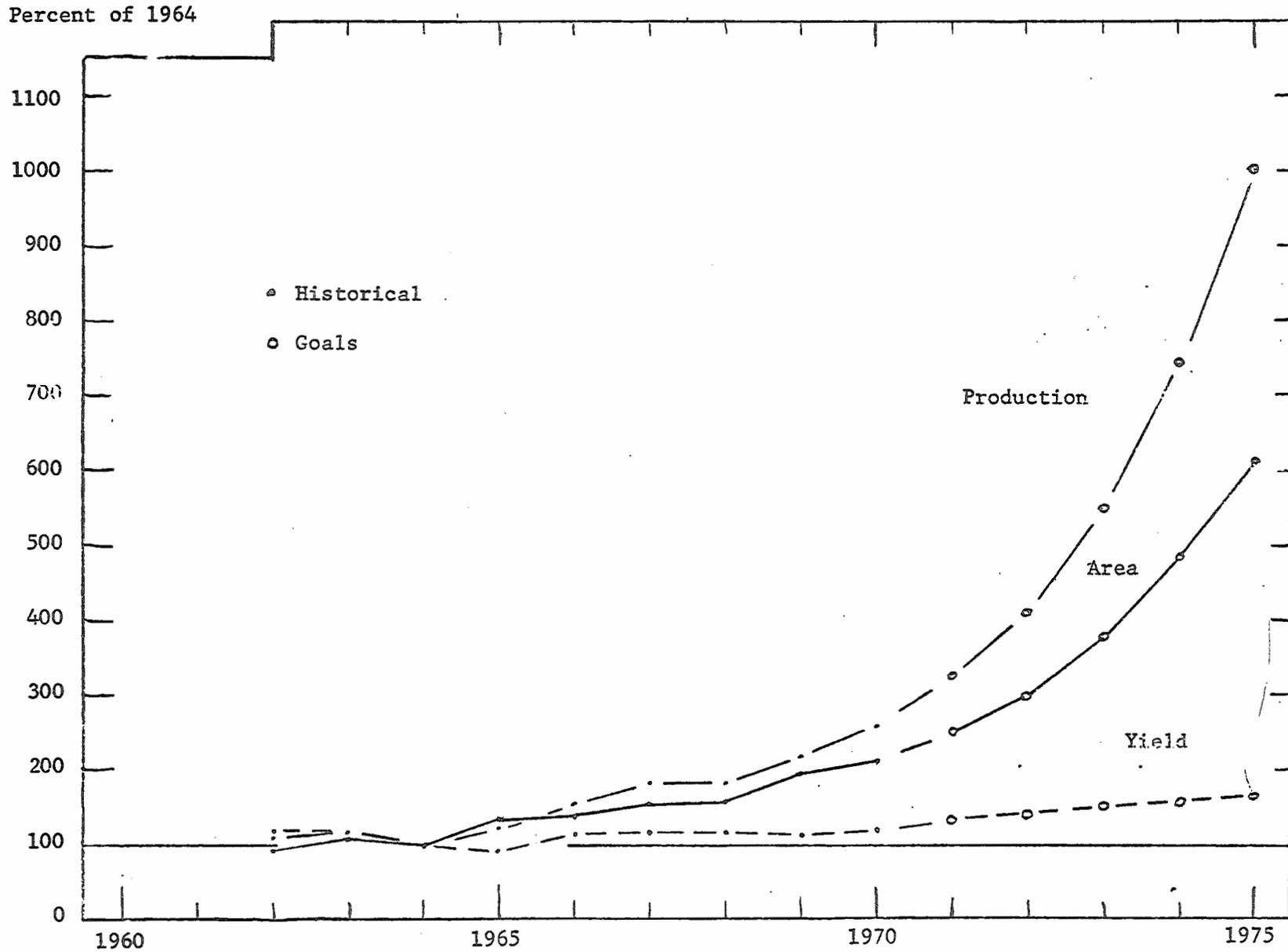


Annex B, Figure 4. VIETNAM: AREA, PRODUCTION, AND YIELD OF CORN PLUS SORGHUM



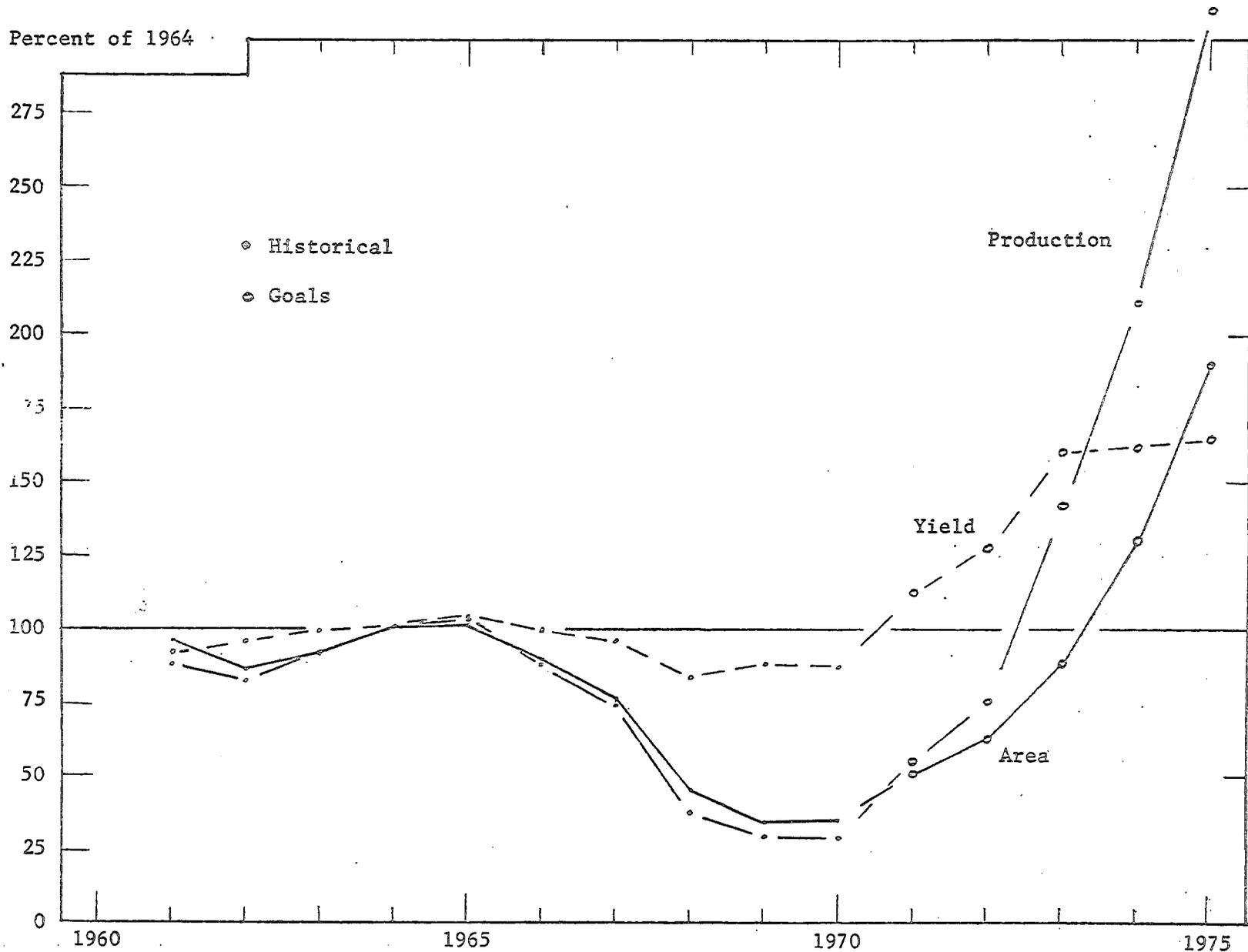


Annex B, Figure 6. VIETNAM: AREA PRODUCTION AND YIELDS OF VEGETABLES



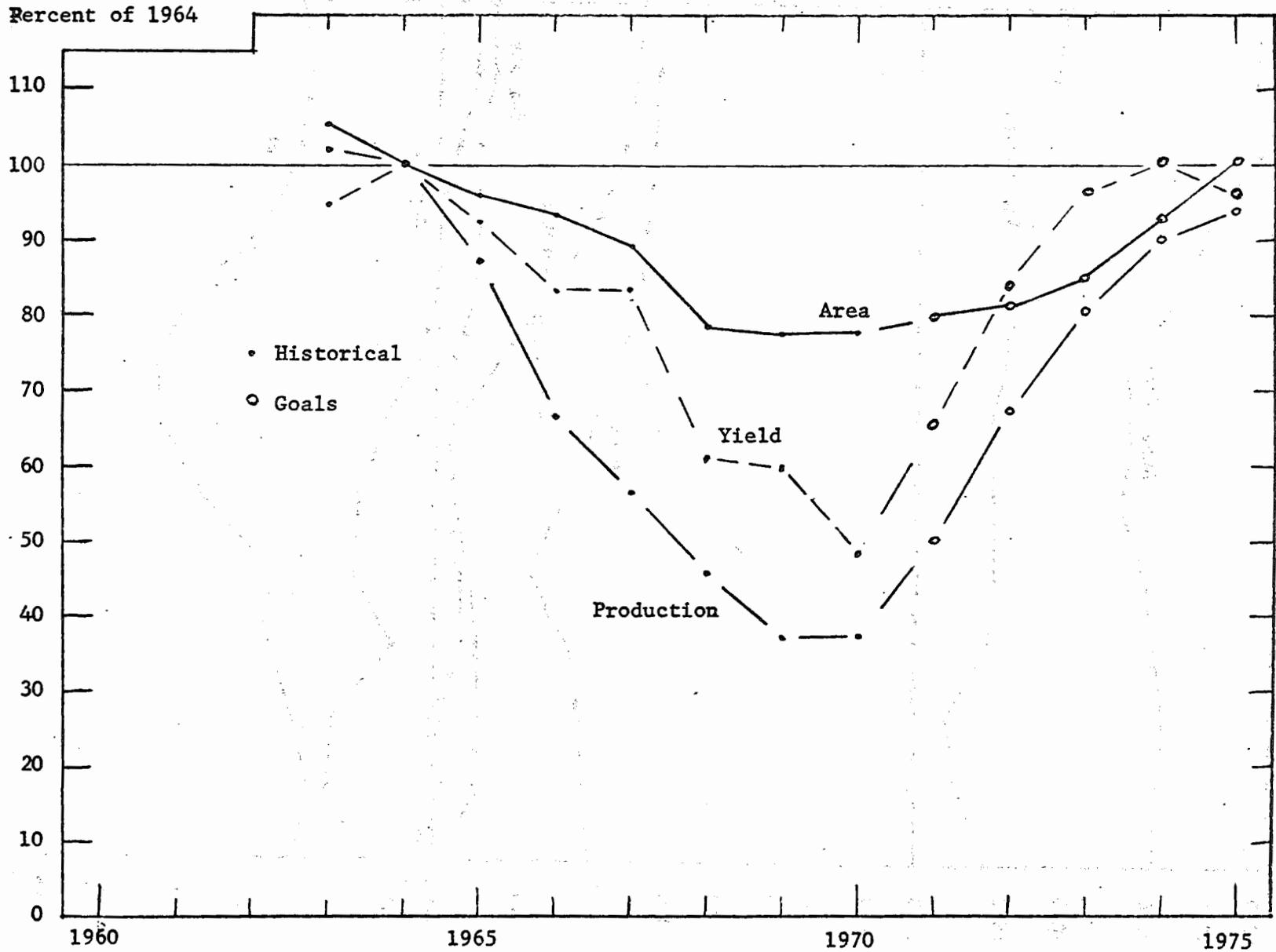
Annex B, Figure 7.

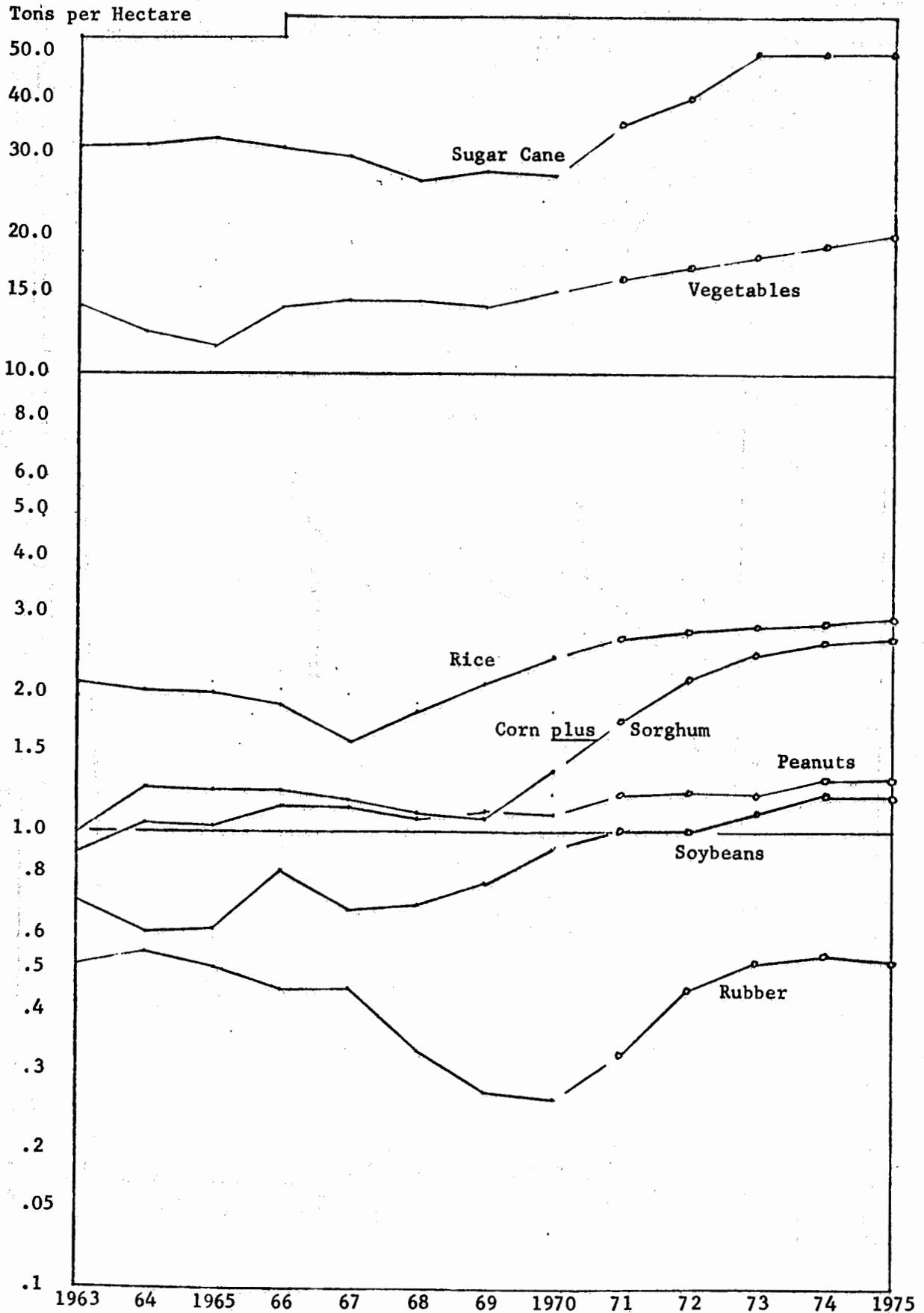
VIETNAM: AREA, PRODUCTION AND YIELD OF SUGAR CANE



Annex B, Figure 8.

VIETNAM: AREA, PRODUCTION, AND YIELD OF RUBBER

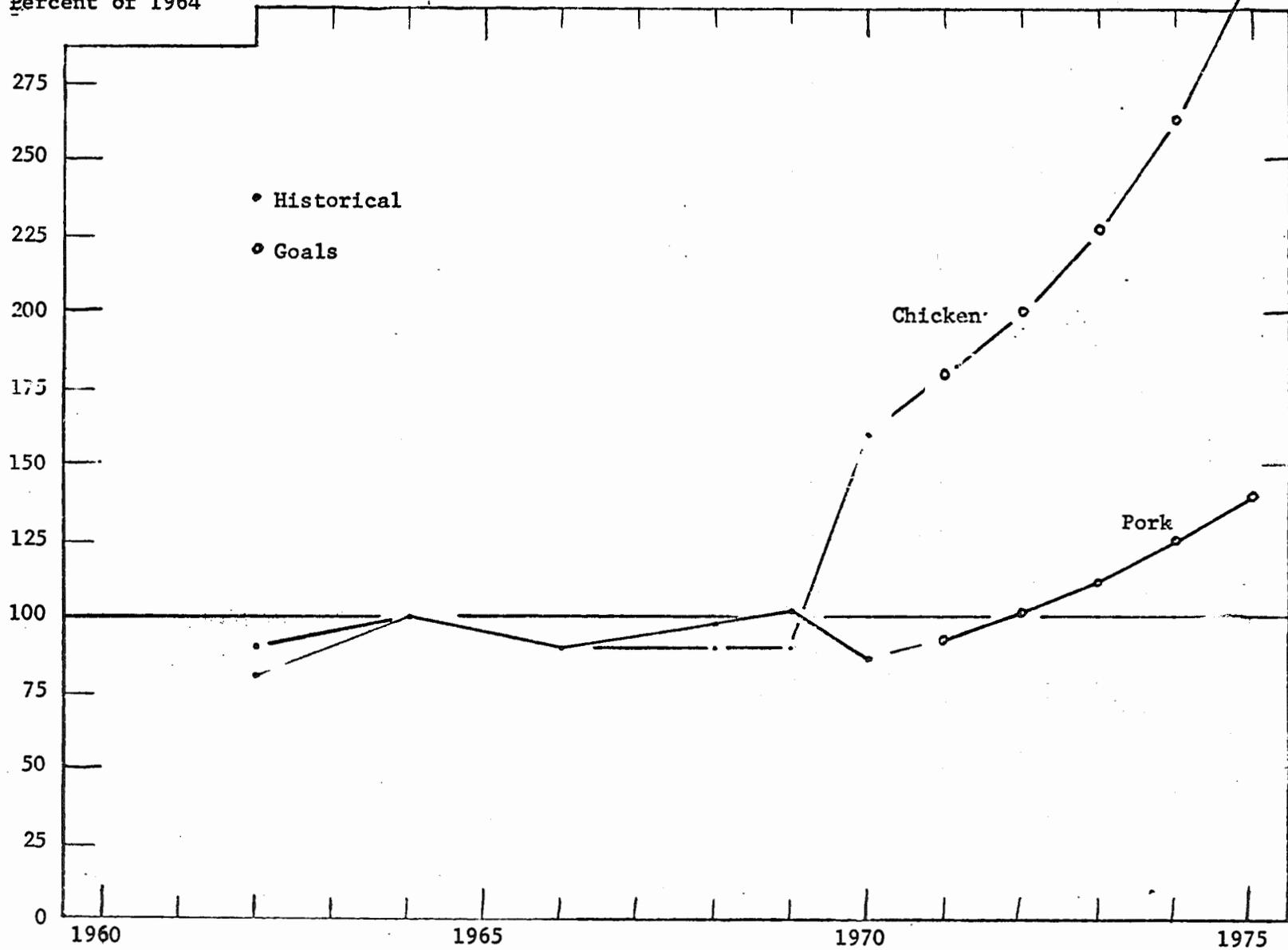




Annex B, Figure 10.

VIETNAM: PRODUCTION OF CHICKEN AND PORK

Percent of 1964



ANNEX C

Prices

While the national summary contained no explicit prices, the eight provincial plans available for review did have explicit prices. These prices are presented in table 2 to show their relationship to the implicit national prices and the variation in prices from province to province.

Some inter-province price variation is desirable and to be expected, but the wide spread in prices among these eight provinces raises at least two questions:

- (a) Do production conditions, transportation costs, etc., vary sufficiently among provinces to account for the great variation in prices shown in the table?
- (b) The implicit national average price should be some weighted average of the province plans; however, there appears to be no relationship between the implicit national average and the individual province plans.

Annex C. Table 2 Price of Agricultural Commodities in Selected International Markets

Crop and Market	1970											
	January	February	March	April	May	June	July	August	September	October	November	December
Milled	-- U.S. cents/kilo --											
<u>Rice</u>												
Burma export	10.3	10.3	10.3	10.3	10.3	10.3	10.3					
Thailand export	15.4	15.1	14.3	13.9	13.9	14.2	14.3					
Philippines Wholesale ..	17.1	17.1	17.5	18.5	18.5							
Taiwan Wholesale	18.3	18.6	18.8									
Hong Kong Wholesale ...	13.4	13.4	13.4	13.4								
U.S.A. Wholesale	18.8	18.8	18.8	18.8	18.8	18.8	18.8					
<u>Corn</u>												
Argentina Production ..	3.9	3.9	3.9	4.0	4.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5
U.S.A. Production	4.4	4.5	4.4	4.5	4.6	4.8	4.9	5.0	5.4	5.3	5.1	5.4
Mexico Wholesale	8.9	8.9	8.9	8.9	9.0	9.0	9.1	9.1	9.1	9.1	9.1	9.0
U.S.A. Wholesale	4.8	4.8	4.8	5.0	5.1	5.3	5.4	5.8	6.0	5.5	5.5	6.0
U. K. Import (Arg.) ...	6.3	6.4	6.5	6.8	7.1	7.2	7.4	7.8	8.3	8.1	7.8	7.8
<u>Peanuts</u>												
India Wholesale	27.7	28.8	30.4	30.3	32.9	32.0	29.7	32.9	29.7	---	26.4	27.5
Europe Import	21.5	21.5	21.3	22.1	22.6	22.5	22.5	24.0	23.1	23.0	24.6	26.1
<u>Soybeans</u>												
U.S.A. Wholesale	9.2	9.5	9.4	9.7	9.9	10.2	10.7	10.3	10.2	10.7	10.9	10.7
U. K. Import	11.0	11.2	11.3	11.5	11.6	12.2	12.8	12.4	12.3	13.1	13.2	12.9
<u>Rubber</u>												
Singapore Export	49.1	46.6	42.7	40.9	40.2	40.0	37.3	35.4	34.2	32.1	34.7	(34.7)
<u>Tea</u>												
Ceylon Wholesale .....	.51	.51	.60	.51	.52	.50	.51	.51	.51	.51		
India Wholesale .....	.75	.75	.70	.76	.94	.96	1.12	.99	.95			
<u>Coffee</u>												
Colombia Wholesale ...	.69	.70	.70	.72	.72	.72						
U.S.A. Wholesale	1.15	1.15	1.17	1.18	1.19	1.19	1.21	1.23	1.26			

Source:

Source: FAO Monthly Bulletin Agriculture Economic and Statistics.

Annex C. Table 2. Implicit National Average Prices and Prices in Eight Provinces, Selected Agricultural Commodities, Vietnam

Commodity	: Implicit : National : Average	: Quang : Tri : 1969	: Kien : Hoa : 1970 I	: Kien : Giang : 1970 I	: Lam : Dong : 1970 I	: Binh : Dinh : 1969	: Long : An : 1969	: An : Giang : 1969	: Tay : Ninh : 1970 I
	-- VN\$/T --								
Rice	16,538	39,200	20,230	25,700	40,000	32,000	24,000	24,350	32,000
Corn	26,972		30,000	38,000		25,000		120,000	50,000
Soybeans ..	99,329	160,000				120,000		124,000	
Mungbeans :	127,723	159,000	92,000			200,000		170,000	150,000
Peanuts .. :	49,697		65,000			60,000		150,000	120,000
Sweet									
Potatoes:	14,398	23,000	17,000	10,000	30,000	16,000	15,000	26,500	
Tapioca ..:	9,937	15,000	12,500	10,000	22,000			21,000	7,000
Sugar cane:	1,776	3,000	4,500	3,800		1,200	3,000	40,000	4,000
Coconuts ..:		40,000	45,000	15,000		---	---	50,000	
Bananas ..:	21,300	30,000	10,000	30,000	40,000		15,000	21,000	
Pineapples:	28,384	592,000	35,500	15,000	60,000	60,000			
Tea	142,000				120,000				
Tobacco ..:	212,949		80,000	300,000	400,000	80,000		280,000	120,000
Vegetables:	39,997		40,000	23,500	40,000	40,000	40,000	35,000	20,000
Fruit	142,000		50,000	85,000	90,000	15,000		160,000	
Pepper:	285,057			330,000					
Coffee:	283,836				400,000				
Fish	84,158	100,000	45,000	85,324		112,868	104,994	99,971	
Buffaloes..:	23,430	26,000	40,000	20,000	40,000	30,000	36,000	75,000	30,000
Oxen	25,560	50,400	30,000	22,000	32,000	25,000	20,000	75,000	35,000
Pigs	12,739	10,000	20,000	19,000	20,000	20,000	20,000	25,000	20,000
Chickens ..:	256	400	300	350	360	300	360	300	300
Ducks	196	350	200	250		300	280	280	250
Chick.eggs:	12	25	15	12	20	20	18	21	15
Duck eggs..:	11	12	12	10	300	20		20	15

