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COUNTRY Laos PROJECT NO. 439-11-190-065

Submission Date 7/25/69 Original X Revision No. _____

PROJECT TITLE: Agricultural Development

U. S. OBLIGATION SPAN: FY 69 THROUGH FY 72

PHYSICAL IMPLEMENTATION SPAN: FY 69 THROUGH FY 72

GROSS LIFE-OF-PROJECT FINANCIAL REQUIREMENTS:

U.S. Dollars	$32,000,000
U.S.-owned Local Currency	9,000,000
Cooperating Country Cash Contribution	4,000,000
Other Donor	3,046,000 1/
Totals	$48,046,000

1/ Through FY 1971 only.

DRAFTED BY	OFFICE	PHONE NO.	DATE	APPROVED BY:
F. E. Rathschart:AGR J. R. Roberts:CP:sl			7/24/69	Charles A. [illegible], Direct

AID AND OTHER CLEARANCES

AGR:~~HRasmussen~~:JUrano

DD:JJChandler (draft)

AGR:~~HRasmussen~~ (draft)

DIST: D, DD, AGR-6, CP-4, C&R-3

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I. Summary Description

A. General

The military conflict, which has dominated life in Laos for more than a decade, has brought with it structural changes that have directly affected the traditional means of livelihood and the ability of the Lao society to produce sufficient food for its own survival.

The single most important change, perhaps, has been the population movements away from the rice paddy and into occupations which are agriculturally non-productive, i.e., military forces and supporting civilian roles in urban areas. In addition, thousands of tribal peoples are kept in a state of virtually constant displacement by military movements which drive them from their lands before a full season of cultivation can be realized.

The occupational distribution of the population has therefore changed from a subsistence model, which in the 1950s found 85-90% of the people producing their own food, to one in which it is estimated that only 1.5 - 1.6 million out of the total population of about 2.8 million, i.e., only about 60% are producers of food.

In the classic model such occupational shifts are generated by changing economic circumstances - - increased agricultural production and a transition from subsistence farming to market production. In Laos these changes were generated by war; the economic transition has only begun to take place.

B. The Food Deficit

Gaps between production and consumption exist in nearly every category of consumable - - rice, other cereals, fish, meats, vegetables and fruits. These gaps are filled by imports which cost the Lao economy (and indirectly the U.S.) millions of dollars in foreign exchange annually. It is not possible to get a complete measure of food imports since most are from Thailand and to a large extent take place as small unrecorded transactions between Lao and Thai traders operating along the Mekong River. However, it is believed that imports of unprocessed foods total approximately $8 million, over and above the $5 million worth of rice furnished annually by the U.S. under project assistance for feeding of military and refugees.

It is equally not known what imports of food take place in the Pathet Lao controlled areas of the country, but it is assumed that substantial quantities of rice must be shipped from North Vietnam and Cambodia in support of the PL/NVN military forces.

Rice, as the dietary staple and the principal food import of Laos, remains the central focus of USAID and RLG agriculture production efforts. But, in addition, we are also continuing a project designed to make Laos self-sufficient in fresh water fish and are undertaking a small program directed toward increasing the production of swine in the area around Vientiane, which presently imports much of its pork from Thailand.

C. Rice Production

The territory under RLG control has a population of approximately 2.0 million. Over the past five years this area has produced between 320 and 350 thousand metric tons of milled rice annually. With consumption requirements of approximately 420,000 metric tons, this has left a concequent deficit of between 70 and 100 thousand metric tons, depending on the particular crop year.

The estimated FY 68 deficit amounted to about 75,000 metric tons of rice. Fortunately, Laos experienced an excellent rice growing weather during the wet season of this year resulting in production increases upward to 20% in some rice production areas (Muoungs Sayfong, Nasaythong and Saythany). On the average, rice production was increased from 5 to 10% over the production of the previous year (1967 was approximately 290,000 M/T and 1968 was 312,000). However, it is important to recognize that because of lack of security, isolation of rice production areas, and the high cost of transportation, aggregate production figures are inadequate as an index to the Laos rice deficit problem.

Basically, Laos is composed of nine major rice producing and marketing areas (see chart for names of areas). Each of these areas has its own supply and demand equilibrium virtually independent of the other production areas. While these areas tend to be closed off from one another internally, production areas immediately adjacent to Thailand production and population centers are directly affected by Thailand's rice paddy supplies and prices.

The geographical area of Khammouane Province southward generally is a surplus producing area and the central and northern portions of Sayaboury Province are self-sufficient. The major need and demand for rice lies in the Vientiane and Luang Prabang provincial areas where rice production is inadequate. The fact that this need cannot be economically met by internal flows from surplus areas, required that primary emphasis be shifted from preoccupation with aggregate yields and toward a concentration on rice production in deficit producing areas, primarily the Vientiane Plain.

Table A gives an estimate of population, production, consumption and surplus or deficit in the ~~xx~~ nine major areas.

1968

ESTIMATED POPULATION RICE CONSUMPTION & RICE PRODUCTION IN RLG CONTROLLED AREAS IN LAOS

Location	Estimated Consumption 1/ Population	Est. Con. M/T of Milled Rice	Estimated Production 2/ Hectares Under Cultivation	M/T Paddy	M/T Milled	Surplus or Deficit M/T of Milled Rice
South						
Khammouane	117,896	25,820	18,850	26,200	16,240	- 9,580
Savannakhet	319,183	69,900	107,500	120,910	74,960	+ 5,060
Pakse	627,390	137,400	226,510	299,220	185,520	+48,120
Central						
Vientiane	330,960	72,480	38,330	45,520	28,220	-44,260
Borikhane	47,329	10,360	8,780	7,800	4,840	- 5,520
X Khouang	166,680	30,340	12,150	12,600	7,810	-22,530
North						
Seyaboury	169,529	30,850	24,610	28,820	17,890	-12,960
L Prabang	224,595	40,880	9,260	9,860	6,110	-34,770
Houakhong	63,719	11,600	6,700	7,900	4,900	- 6,700
Total	2,067,281	429,630	452,690	568,830	346,470	-83,160

1/ Based on a January 1960 nutritional survey which indicated a consumption rate of 219 Kg. of rice a year per person in the southern areas, Vientiane and Borikhane, and 182 Kg. of rice a year per person for the northern areas and Xiengkhouang. Figures include 30% allowance for loss in storage and handling.

2/ Derived from estimates made by RLG provincial offices of Agriculture and USAID Agriculture Advisors Area, April-July 1968.

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C. Concentration in Deficit Areas

1. The Vientiane Plain

As the first step toward concentration on the Vientiane Plain, two priority areas immediately surrounding Vientiane City and totalling approximately 22,500 hectares were selected for a saturation program during the current wet season. These areas, designated as Priority Areas A and B on Map B under Section II, were selected because of their accessibility, their relatively good soils and because of the apparent progressiveness of their farmer population, as evidenced by past production records. RIS and ADO agents have been concentrated in these areas in a continued effort to increase fertilizer usage, assure that the most productive cultivation techniques are being employed, and insure that the necessary market outlets and incentives are present. Concentration on these areas will continue through successive growing seasons, with the immediate goal of a sharp reduction in the deficit in the Vientiane market.

In addition to this program, several areas on the Vientiane Plain are under study for irrigated farming by the U.S. and other donors. An irrigation feasibility study on 10,000 hectares north of Vientiane city will be conducted during FY 1970 by a U.S. Bureau of Reclamation team. This study will examine the economic and technical feasibility of pumping water from the Mekong River to irrigate about 10,000 hectares. This area alone, if brought under high yield cultivation, could eliminate the major share of the Vientiane rice deficit.

2. Luang Prabang

In an effort to reduce the deficit in the northern area of Laos, the Nam Tam irrigation project was undertaken during FY 1968. Construction will be completed during FY 1970 and the project is expected to be under full cultivation during the wet season of 1970. This will provide irrigation for approximately 2,000 hectares during wet season cultivation and 1,000 hectares dry season. Assuming the use of high yielding varieties and fertilizers, this project is expected to produce about 12,000 metric tons of paddy rice annually. With completion of the Luang Prabang road in FY 1969 and further road development in the northern area during FY 1970, it is anticipated that nearly all of this yield can be directed toward the Luang Prabang deficit.

E. Project Goals and Targets

1. General

The overall goal of the Agriculture Development project is to make Laos self-sufficient in the production of major foods by 1975 and to export

any existing foodstuff surplus as is economically and politically feasible. Self-sufficiency in rice production is clearly a function of supply and demand for rice in the Vientiane Plain and the Luang Prabang consumption areas since the other producing areas are essentially self-sufficient at the present time. Self-sufficiency in rice production on the Vientiane Plain will be attained about 1975 if our present projections hold true. Project targets for each production area will be more precisely developed during FY 70 as major efforts are made to identify both marketing and production potentials for each area. As mentioned above, our targets for FY 70 and beyond represent a transition in our planning from the aggregate approach to increased rice production to the concept of production area self-sufficiency.

2. Accelerated Rice Production

An ambitious RLG/USAID rice production program was established in early 1967 with a target to eliminate the deficit by 1970, and to achieve exports of 180,000 tons per year by 1972. It was discovered shortly after these targets were expressed, that they were overly optimistic on such basic factors as available dry season irrigated land, performance of "miracle" rice varieties, and ability and willingness of Lao farmers to organize and direct their efforts toward increased production during dry seasons.

Production goals were modified substantially in the FY 1970 Program Memorandum, but still remained too optimistic and directed toward the production of large exportable surpluses.

Current aggregate production targets given in Table B reflect a realistic assessment of what can be accomplished in the way of production increases through the wet season of 1972. The projections are based increasing multiplications of new improved varieties and assume the use of fertilizer on all improved varieties of seed during the wet season of 1969 and beyond. The figures reflect the distribution of 25 M/T of Champhai Taichung (IR-253) rice seed for the wet season 1969 plantings and assume the availability of 120 M/T of Champhai Taichung (IR-253), IR-262 and IR-400 for 1970 dry season planting and 240 M/T of these seeds for 1970 wet season planting. They further assume that equivalent amounts of these or newer seeds can be placed with farmers for planting during successive years.

As such, the projections are technical possibilities, based on the projected availabilities of input requirements. They cannot take into account all-important but unpredictable factors such as weather, security or unforeseen sociological or economic obstructions.

Exceptionally good weather could be expected to carry production increases beyond those projected just as less than anticipated farmer

acceptance could produce a sizeable shortfall below targets. What is more important than aggregate targets, however, is how much of this improved seed, fertilizer, insecticides and improved technology can be pumped into the major deficit areas, notably the Vientiane Plain.

Projected Increase in Rice Production

Calendar Year (Harvests)	Dry Season Cultivation: Number of HA.	Average Yield Per Ha. Milled Rice	Increase In Prod. M/T of Milled Rice	Wet Season Cultivation: Number of Hectares	Average Yield Per Ha. Milled Rice	Increase In Prod. M/T of Milled Rice	Total Increase Prod. of Milled Rice
1969 a/	- -	- -	- -	22,100	.47	10,400)	14,400
b/	1,800	1.68	3,000	825	1.24	1,000)	
1970 a/	- -	- -	- -	27,300	.54	14,700)	33,700
b/	3,500	2.18	7,600	7,900	1.5	11,900)	
1971 a/	- -	- -	- -	31,000	1.3	40,300)	70,300
b/	5,500	2.18	12,000	12,000	1.5	18,000)	
1972 a/	- -	- -	- -	98,900	1.3	128,600)	169,000
b/	7,500	2.18	16,400	16,000	1.5	24,000)	

a/ Native varieties and improved varieties from previous distributions. This category includes native varieties of the indica type and also improved varieties which have been developed from native seed stock. The improved varieties were selected at the RLG/USAID research stations for yield and other performance characteristics (disease resistance, early maturity, response to nitrogen fertilizer, etc.) and distributed during previous growing seasons. The yield of these seeds becomes progressively lower in subsequent growing seasons largely because in the process of successive plantings and farmer seed exchanges, these varieties become increasingly more mixed with unimproved native varieties.

b/ New Improved Varieties. Varieties such as IR-242 and Chaophai Taichung (IR-253) which are exceptionally high yielding with optimum production inputs - - in the range of 200 to 500% over native varieties - - and distributed to farmers for production as they become available from the seed multiplication program.

Past emphasis on large aggregate production and exportable surpluses were developed at a time when the world rice market was seen to be infinitely elastic in its demand for rice. The world price for rice had over a long period remained steady at approximately $190 per metric ton for quality rice, a price that Lao farmers and rice processors could readily compete with despite inland transport and other handicaps. Within the past twelve to fifteen months, however, the "green revolution" in areas which previously offered large markets, has shrunken world demand for rice, lowered its price and dimmed considerably the prospects for Laos as a world rice exporter.

We do not see future Lao exports of rice as impossible, but believe that the primary goal of our project efforts must be directed toward self-sufficiency - - toward producing sufficient foods in the areas of highest demand so that imports are not necessary. Our priority goal is self-sufficiency in rice. Secondary goals are directed toward agricultural diversification, principally the internal production of fish and meat as a substitute for importing these items.

2. Fish and Livestock Targets

a. Fish Production

The Fisheries project, which was begun in 1966, aims to promote fish production in farm ponds and paddy in the areas of principal fish imports. Rehabilitation of three fish hatcheries at Vientiane, Pakse and Luang Prabang will be completed by the end of FY 1970. Annual production targets which we expect to be realized by 1972 are: one million fingerlings and 30 - 40 M/T of fish for Pakse; 1.3 million fingerlings and 35 M/T of fish for Vientiane; and one-half million fingerlings and 5 M/T of fish for Luang Prabang.

b. Livestock

A small livestock program using one IVS livestock advisor and a TCN livestock specialist was instituted in FY 1970. This program will concentrate on commercial pig production in the Vientiane area. The goal of this program is to raise commercial pig production in Vientiane from its present 8,000 head to 44,000 head by FY 1975, substantially reducing imports from Thailand. This activity requires an accelerated production program for feed and forage.

II. Accelerated Rice Production

A. Concentration on the Vientiane Plain

1. General

The Vientiane production area consists of approximately 30,000 hectares with a population of about 360,000. Approximately 160,000 of these people currently live in Vientiane city and account for the total rice deficit of the area. Population growth in rural areas is projected at a rate of 2.5% per year. The rate of population growth in the urban area will be at least double this and indeed has been much higher than 5% during recent years. On this basis, by 1974 the city will have 204,000 inhabitants, and by 1979 about 290,000. Present rice consumption needs of the urban population are about 35,000 M/T, a figure which will grow in proportion to the population increases. The following chart shows population and consumption needs expected through 1975, the target year for self-sufficiency.

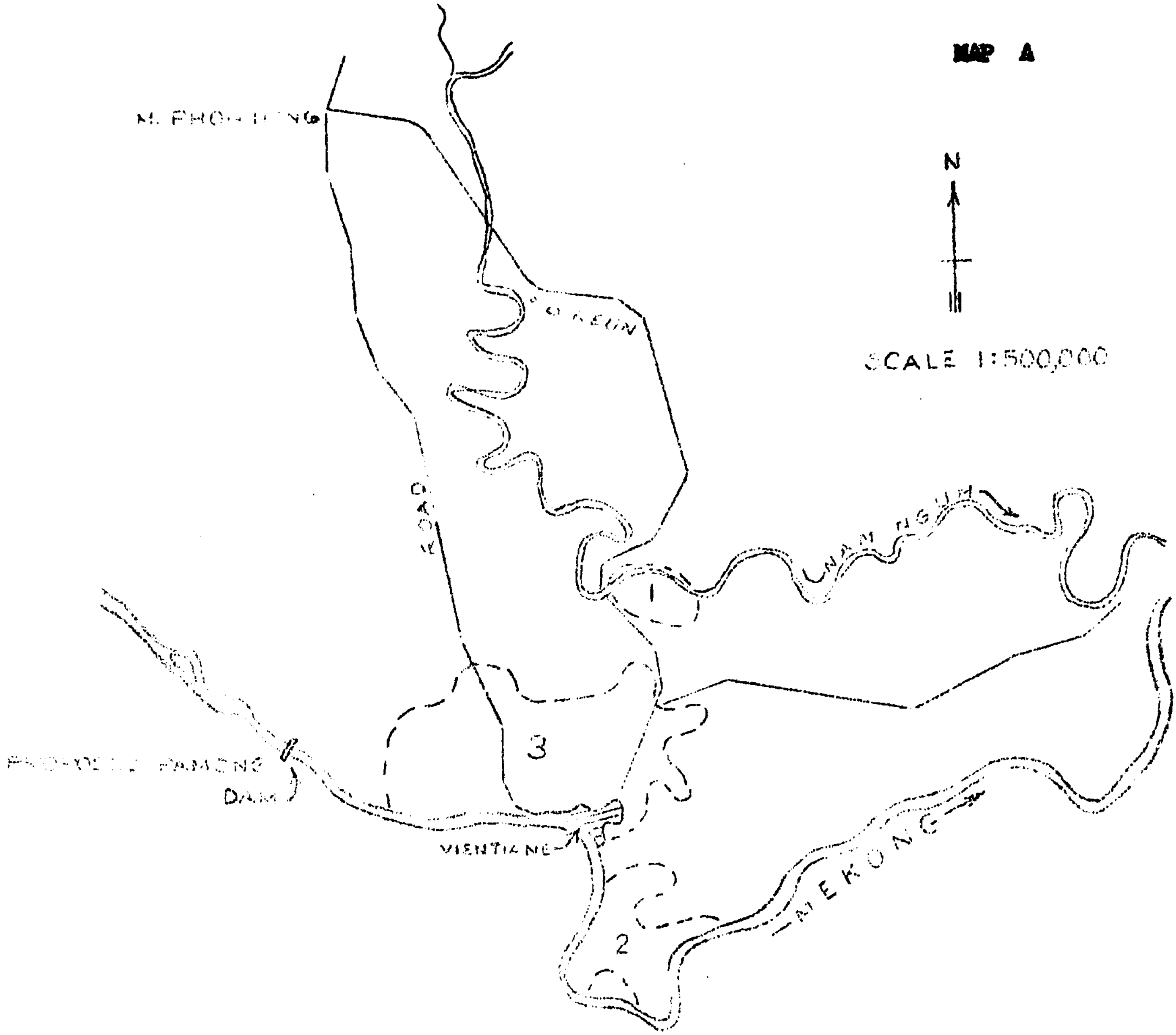
Projected Population & Rice Consumption Requirements for Vientiane City

	Population	(In Metric Tons of Milled Rice) Rice Requirements
1969	160,000	35,000
1970	168,000	37,000
1971	176,400	39,000
1972	185,200	41,000
1973	194,500	43,000
1974	204,200	45,000
1975	214,400	48,000

At present we estimate that less than 5,000 tons of the Vientiane urban rice requirements come from Lao sources. This means that in order to achieve self-sufficiency in the area by 1975 production will have to increase by approximately 43,000 metric tons over the next five years. Moreover, the production and marketing capabilities will have to be such that production increases of 5% or more will take place each year thereafter on a self-sustained basis.

The Vientiane Plain has several areas which indicate high economic feasibility for irrigated farming. The area considered of highest priority by the Asian Development Bank team (which recently completed the field portion of its Vientiane Plain survey) is the Tha Ngon area of 800 hectares (see Map A) where the Japanese are prepared to move ahead with construction during the dry season. An area designated as second priority by the team is the Hat Nok Kao area of 5,021 hectares (see Map A) where the Israeli government has surveyed tertiary canal systems but where the major irrigation

MAP A



BLOCK	AREA (HA)	
1	[illegible]	Tin Ngon (Japanese Study Area)
2	[illegible]	Hat Dok Keo
3	10,000	[illegible] (IBRD FASA Study Area)

[illegible]

system has yet to be designed. New Zealand, however, has indicated interest in undertaking this project. (We would assign a much lower priority to the Tha Ngon area because of its apparently poor soil.)

A third priority area mentioned by the team is the Khao Liao area of 8,200 hectares which may be an area where U.S. assistance could profitably concentrate.

The ADB is scheduled to complete its study and submit its final report to the RLG in September 1969. In addition to this study, USAID has financed a feasibility study covering roughly that area included in stage one of the Pa Mong study. It has a gross area of about 20,000 hectares of which approximately 10,000 hectares are believed irrigable. The 8,200 hectares mentioned above is largely included in this area. The study will investigate the feasibility of irrigating this area, prior to the availability of Pa Mong gravity flow water, through pumping stations along the Mekong River.

2. Area of Present Concentration

Apart from the major capital-type irrigation projects that are foreseen as a part of the Vientiane Plain rice production effort, USAID is engaged in a concentrated program of technical assistance and material inputs into an area immediately surrounding Vientiane city. This is an attempt at making an immediate impact on the Vientiane deficit through input saturation into those areas most accessible to the city market. The principal area selected is a "crescent" around Vientiane which includes Sayfong (in the loop of the Mekong), the peripheral area around Vientiane itself, and the portion of Muong Saythany directly north of the city. This first priority area which we have designated Priority Area "A" contains about 15,000 hectares of paddy land (now in production). We estimate current production in this area at 1.2 tons per hectare; our aim is to double this yield (through use of improved varieties, fertilizer and insecticide) for a production increase of 36,000 metric tons. (This compares with the 43,000 increased yield target figure for 1975.)

To allow for the remaining production increases needed, RLG and USAID Agriculture have designated Thourakhom and the rest of Naissythong, which lies just outside Area "A," as a second priority area "B." This area presently contains about 7,500 hectares and has already shown some signs of progress in increased rice production. These areas are shown in Map B.

With full realization of production possibilities in these areas, the 1975 goals could be achieved. There are, however, numerable production

and marketing problems that must be solved.

3. The Production Situation

The 15,000 hectares designated as area "A" (Vientiane, Sayfong and Naisaythong) are presently judged as "good" producers of rice and are estimated to have produced 5-6,000 metric tons of surplus in the 1968 season plus 400 tons in the 1968-69 dry season.

Based on field trials and farm demonstrations, it appears that production can be increased by 20% through use of fertilizer on native varieties already grown in the area. Introduction of other improved practices such as new improved varieties of seed, use of insecticide, fungicides, weeding, rat control, and water control would increase yields significantly above this 20% figure. Our approach in the area is the "package" one which brings to bear simultaneously all of the technological improvements as well as market incentives into the area of concentration.

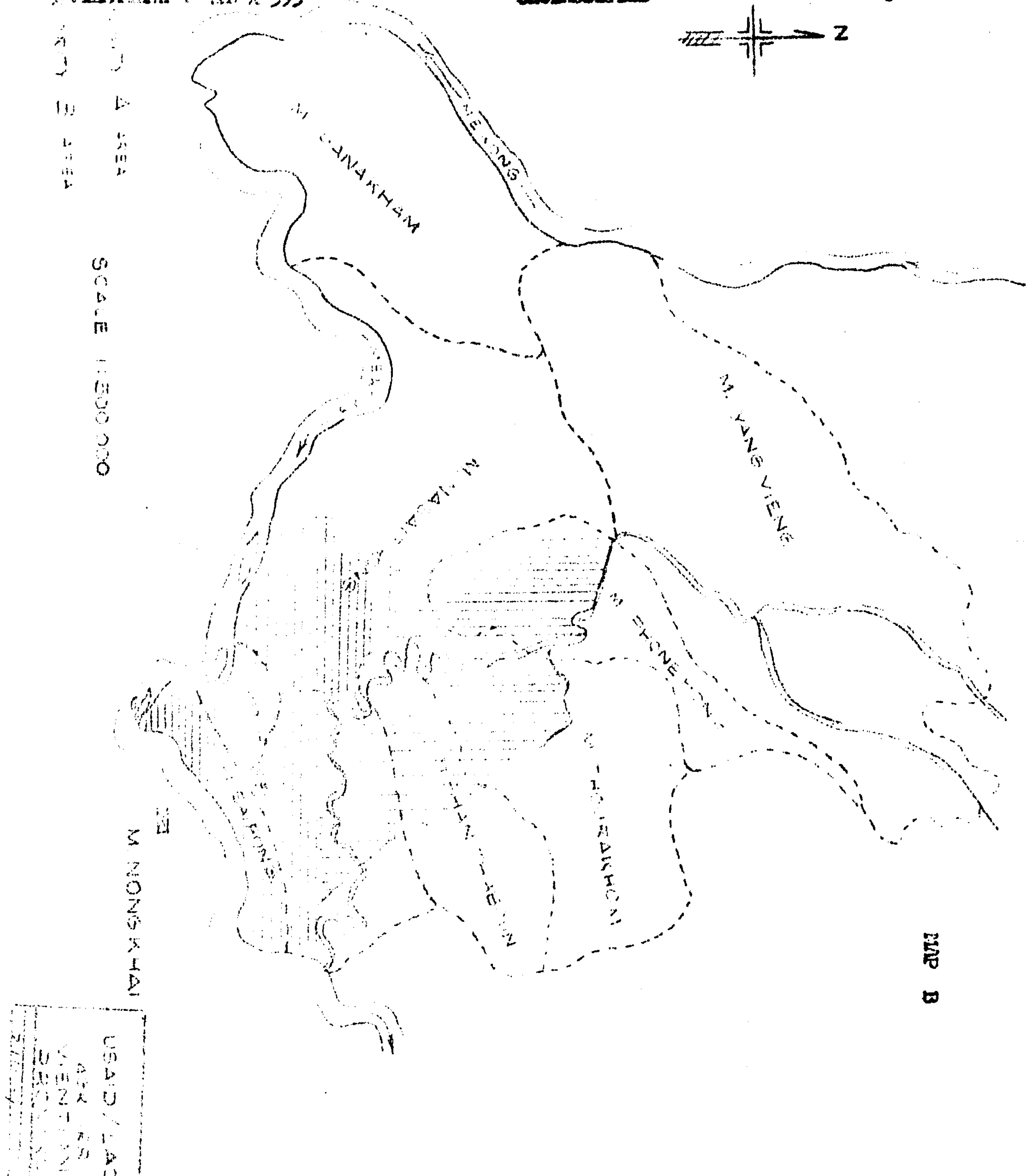
Base data on production are relatively difficult to establish since (1) 1966 crops were badly damaged by floods, insects, and drought with up to 50% of the crop destroyed (farmers were obliged to buy consumption); (2) 1967 yields were probably 20% below expected yields because of the drought (again little or no sales to Vientiane city consumers); (3) 1968 was a bumper year, with production of an estimated surplus of 17,000 M/T *; (4) 1969, because of the late onset of rains, surplus production is estimated to be about 10% less than 1968 and may be a good norm to use as a base. To measure the relative success of our concentrated program, we plan to take for a base the 1968 surplus production of 17,000 tons less 10% or 15,000 M/T.

Because this program was initiated just at the onset of the rains this wet season, little can be done during the present planting season except to direct efforts toward increased sales and applications of fertilizer. It is estimated that 500 tons of fertilizer can be sold this year under the concentrated program. If applied to native varieties an increase of 3,000 tons over "normal" yield levels can be expected.

Another known limitation during the current wet season is accessibility to all parts of the "A" and "B" areas. While Sayfong villages are reasonably well served by dry weather and many all-weather roads, most other villages in areas A and B are not nearly as accessible.

In future seasons feeder roads as well as seeds, fertilizer and other strictly agricultural inputs, will receive priority attention.

* Surplus production calculated as follows: ADO purchases, 9,000 M/T, commercial merchant purchases 3,000 M/T; remaining in villages 5,000 M/T.



MAP B

One interesting aspect with regard to seed varieties is the fact that 8,000 M/T of the Vientiane deficit is in white rice and that there is some evidence that the consumption of white rice in the city seems to be growing proportionately faster than consumption of glutinous varieties. In selecting varieties for distribution, this factor will be taken into careful account.

4. The Marketing Situation

Review of the 1968 and 1969 experience with production in the Vientiane Plain reveals that marketing is as much a limiting factor as production in the elimination of the rice deficit in the Vientiane city market.

One of the primary keys to success in the concentrated program we believe is that of assuring a market for the surplus. Farmers must be able to sell their market rice at a fair price if they are to continue as in subsequent years to produce surpluses.

The present commercial system for bringing rice to mills in Vientiane is inefficient and sluggish, and will require attention on several fronts notably, accessibility to farms and organization of rice collection mechanisms, to make it competitive with the Thai system.

a. Milling capacity will have to be enlarged. There are currently only three large mills in Vientiane (two more than last year) which have a combined maximum annual capacity of 18,360 M/T. This capacity will have to be more than doubled over the next three to four years. There are current indications of interest on the part of investors. An aggressive campaign through both this project and the USAID Industry Development project will be necessary to attract private investment into the rice milling business. An increase in the number of millers will not only expand absolutely the local capacity for producing milled rice but will also introduce into the market an equal number of paddy rice purchasers, merchants who must purchase rice in paddy form if profits from their investments are to be realized.

b. Drying and storage capacity must be systematically improved and increased.

c. Better feeder roads will need to be constructed. ADO must, at present, use four-wheel drive trucks after the rains begin to enter many villages with priority areas. Independent merchants cannot reasonably be expected to invest in such vehicles.

d. Credit at reasonable interest rates must be made available not only to farmers for their input requirements but also to millers

who often lack sufficient capital to buy paddy for production. We see ADO and the Industry Loan Fund as possible intermediaries in this problem.

In addition to these, it may be necessary for the RLG to adopt some more general measure to insure that Lao producers of rice are able to compete with Thai producers in the Nongkhai vicinity. USAID is currently exploring with the RLG the possibility of a 10% import tax on rice. Such a tax would not be popular with the urban consumer; however, with recent reductions in rice prices, we calculate that the amount of the tax could be absorbed without raising the retail price of rice in the Vientiane market above 1968 levels.

5. Goals and Course of Action

a. Primary Goal. The primary goal of the concentrated program is to supply all consumption rice requirements of Vientiane city with production from the Vientiane Plain thereby eliminating the necessity to import Thai rice. The primary goal is divided into two secondary goals which deal separately with the production sector and the marketing sector.

(1) The goal of the production sector is to increase rice production in the Vientiane Plain, primarily through the introduction of yield increasing agricultural technology, and secondarily through mechanization which accelerates bringing new land into production. Targets for quantities to be increased for each year shall be established by the joint action group early in the program planning stage.

(2) The goal of the marketing sector is to develop an efficient marketing system with the capability of handling all farm surpluses produced in the Vientiane Plain. Following the principle that milling, storage and most other marketing functions belong in the private sector, the goals of this program is to provide whatever assistance is necessary to the commercial firms or farmers' associations engaged in rice marketing.

Although the long-range goal of this program is concerned with the entire Vientiane Plain defined as the production area supplying the Vientiane city market, the goal for the early stages of production increase focuses on a specific area of the Vientiane Plain which offers the best possibility for maximum return on the investment through a concentrated and efficient use of resources.

b. Course of Action

(1) Organize joint RLG-USAID action group to plan and coordinate implementation of the project. This has already been done on

on ad hoc basis for immediate needs in the current planting season.

(2) Define in specific terms the project goals

- - precise areas of first priority, second priority, and third priority

- - production and marketing targets for each area by year on a five-year program

- - establish basis for future adjustments in project goals made necessary by other developments such as Nam Ngum, Nam Pamong, and the larger irrigation projects in the Vientiane Plain.

(3) Outline resources required for project by year, starting with FY 70.

- - specify manpower and training requirements

- - determine any requirement for outside assistance for contract work or studies.

(4) Establish time table for completion of each phase of project

- - using critical path technique which reports immediately any delays on any part of project.

(5) Establish reporting and evaluation system for project

- - establishment of criteria for evaluation at outset and a monthly reporting system which collects and compiles data on a regular basis.

6. Evaluation

As a part of the general effort toward accelerated rice production, an evaluation system was begun in May 1969.

The evaluation effort involves the collection of three basic categories of data. Those categories are resource input, production output, and base data. Input data and output data are being collected for FYs 67, 68 and 69. Data is being collected for each rice marketing zone in the entire country. Collection of the specified data will allow us to make the

following evaluative calculations.

a. Cost per hectare irrigated both for wet season water control and dry season irrigation.

b. Average cost per ton of increased production.

c. Increase in output per dollar of U.S. input.

d. Increase in output per U.S. technicians.

e. Increase in output per person and productive farm unit affected by the program.

f. Difference in output between areas affected by the program and those not affected.

g. Increase in gross national product resulting from the program.

The foregoing is illustrative of the kinds of information that can be arrived at through utilization of the data being collected for the evaluation. The data is being collected in such a way that it can be easily manipulated for answers to many types of questions concerning the results of the Accelerated Rice Production Program. We will be able to evaluate the program by marketing zones and nationally.

The current effort is an initial one for this program. Much of the base data, however, has been developed previously by the Agriculture Division. It is intended that this initial evaluation will provide the framework from which a disciplined, continuing evaluation system can be maintained.

III. Sectoral Roles and Strategy

A. Production

1. Crops and Soils (Agricultural Research)

C & S will carry out a program of building a basic agricultural research capability within RLG/AGR and, at the same time, carry out a research program necessary to determine the necessary inputs essential to increasing production.

Much work has already been accomplished in both areas. A basic research station has been established at Salakham. Proof testing has been

conducted on imported and domestic rice varieties. Proof testing will be carried out in FY 70 in multiple cropping with crops other than rice. From research already conducted we have found that Thai varieties have better gain quality for Lao consumption requirements than the IRRI varieties. These varieties have been found to produce from 3 to 4 M/T per hectare and are fully adaptable to local conditions. A seed multiplication program is already underway and in FY 71 240 M/T of certified seed will be ready for distribution.

2. Extension

Extension will carry out a twin set of goals: building a basic extension administrative capability within RID/AOR while at the same time getting the information, developed through research, to the farmer. In addition the Extension project has the responsibility for a Home Economics program which will be treated at the end of this section.

The RID/Extension Service presently has 203 administrative and technical personnel assigned to forty development zones, village cluster areas and Vientiane headquarters. A majority of agents possess a sixth grade education. An effort to upgrade the technical quality and motivate the staff is of prime importance.

In addition to the participant training in Thailand, in-service agent training will be conducted on a wide and continuous scale. The staff received in FY 69 training "by doing" with 103 wet and dry season demonstrations. For FY 70 113 wet and dry season demonstrations are planned. Rice varieties used and production techniques employed shall be based on applied research recommendations. These demonstrations give both agents and farmers the opportunity of seeing the results of modern inputs versus traditional methods.

Special training will continue to be carried out for farmer leaders. This consists of selected local farm leaders being given a six-day course in rice production involving the latest techniques in irrigation, land preparation, seedbed preparation, transplanting, insect control, fertilization, harvesting and a half-day course in pisciculture. Plans are to reach approximately 760 farm leaders a year.

A six months in-country training course will be conducted twice a year using returned IRRI participants plus IRRI-trained USAID staff members. This course will cover the latest rice production techniques and will be given to approximately 60 selected personnel from Extension, Research, ADO, IVS and RDD. A two week in-service refresher course for extension agents is conducted once a year for all extension agents. This

course includes rice, fish, vegetable and other crop production.

One-day farmer tours are conducted throughout Laos for the purpose of showing the farmers the above mentioned rice demonstrations. During FY 69 approximately 3,000 farmers participated in the wet season demonstrations and 1,500 in the dry season demonstrations. This program will be continued throughout the life of the project.

A two-day rice production course for interested farmers will be conducted in selected areas beginning in FY 70 and continuing until the end of the project. This course emphasizes insect and disease control, rice varieties, and fertilization. This course will involve about 3,000 farmers per year.

In FY 1969 a school garden program began in an effort aimed at diversification. This program is coordinated with RLG Agriculture and the Ministry of Education. Seeds are distributed by RLG agents and basic instruction will be given.

The Home Economics portion of the Extension program complements USAID's food production program through village training programs in nutrition, home gardens, child nutrition and development, and basic sanitation.

A major in-service training program has been, and will continue to be conducted annually. This program will include training in balanced diets, nutrition, home gardening, and teaching methods. Instructors are drawn from RLG, IVS and USAID personnel with specialized training. The training is conducted in Vientiane and consists of both lecture and laboratory work. This annual program will continue until the end of the project.

After in-service training the home agents return to their respective areas and conduct village-level training programs using the knowledge and techniques learned in Vientiane. Each group of home agents will conduct one program in each of five villages of two-months duration. These courses will reach approximately 1,150 people throughout Laos per year. In addition, evening demonstrations will be conducted in approximately 40 locations reaching approximately 2,000 people of all ages. These demonstrations will concentrate on nutrition.

3. Livestock

The Livestock program will concentrate on pig production in the Vientiane area. The goal of this program is to raise commercial pig production in Vientiane from the present 8,000 head per year to 44,146 head by FY 1975, thereby making the Vientiane area self-sufficient in pork.

In addition, we are developing a vaccine production capability within the RLG Directorate of Veterinary Medicine and Livestock to reduce expensive imported vaccines. Training will be given in the area of foot and mouth disease in conjunction with a U.N./RLG/USAID program aimed at countering this disease in Laos.

4. Irrigation

The irrigation sub-activity will continue to upgrade the administrative and technical capability of the RLG/IRR Bureau while at the same time, in collaboration with the present RLG/IRR staff, carry out feasibility surveys, design and construction and the operation and maintenance of irrigation systems and projects. The irrigation projects will further Mission goals by providing a dependable supplemental supply of water for wet season production and provide a full water supply for dry season on a somewhat smaller area, thus providing the potential for greatly increased crop production. It is expected that future emphasis of the program will be increasingly shifted from scattered, small, easily constructed pump or gravity diversion-type projects to larger easily accessible projects with larger economic benefit, concentrated in discrete zones along the Mekong, particularly in rice-deficit areas.

Upgrading RLG/IRR administrative and technical capability is a continuing effort. Participant third-country training, in-service training and extensive on-the-job training are used. On-the-job training has been, and will continue to be an integrated part of the irrigation project target to develop a trained staff. Each year about 80 trainees are funded to assist in irrigation projects throughout Laos. RLG and USAID Irrigation employees work side by side with the trainees as in developing a core of sub-professional technicians.

Two training courses, each of one-month duration, are given in elementary and advanced irrigation methods especially applicable to low-level trainees. The elementary course is an introduction and covers public relations, concrete fundamentals, water use and control, elementary surveying and safety practices. The advanced course is for trainees that previously completed the elementary course and covers pumping irrigation, advanced concrete, mathematics, and construction and advanced surveying.

With the shift in emphasis from small projects to larger projects an increasing amount of the necessary funds will hopefully come from sources other than the U.S. bilateral assistance program. As mentioned in Section II, Japanese aid will design and supervise construction of one irrigated project, and a second area is under consideration for investigation by New Zealand. A feasibility study on a third 10,000 hectare area in the Vientiane Plain will be completed by a U.S. Bureau of Reclamation team during FY 1970

under a PASA signed in FY 69. If, as expected, feasibility findings are positive, it is anticipated that an A&E contract for design will be let and sources of funding will be located through the Asian Development Bank, regional or multilateral programs, or perhaps a special international consortium.

For construction of the 10,000 hectare irrigation project we presently estimate that approximately $800,000 would be required for architectural and engineering services (for design of the irrigation system, gates, sluiceways, etc.), approximately $2 million for the pumping plant and electrical equipment, and about $10 million for actual construction work.

Ideal timing for availability of these funds mentioned above would be $2.8 million in FY 1971 for A&E services and for the ordering of pumping equipment, and $10 million in FY 1972 for funding of the construction contract and continuing A&E services in the future.

The largest project that has reached the construction stage is the Nam Tan Project located about 35 kilometers south of Savaboury which, when fully developed, will irrigate about 3,000 hectares in the wet season and 1,000 hectares during the dry season. It is anticipated that some of this area will have irrigation water available this wet season and that the project should be completed during FY 1970. Anticipated production should average about 3 metric tons per hectare giving 9,000 metric tons during the wet season and 3,000 metric tons during the dry season for a total of 12,000 metric tons annually if modern inputs are used. The total cost of the Nam Tan Project is approximately $1,000,000.

Small irrigation projects will continue to be implemented as a part of both economic development efforts and our efforts toward political and social development in the rural areas although to a lesser extent than in the past. Most of these projects are of a self-help nature, small and inexpensive in absolute terms, but of tremendous significance to the benefitting villages. The group action required in both the construction phase of these projects as well as the later phases of water control and distribution is often instrumental in the formation of long-lasting institutions directed toward community action and development.

The Stage One Report on the Pa Mong Project will be issued in FY 70. This report will cover irrigation, on the same 10,000 hectare area mentioned above, by gravity from the Pa Mong Dam. The study on the area being made by the U.S. Bureau of Reclamation for this Mission will provide for irrigation in advance of Pa Mong by pumping from the Mekong River.

5. Fisheries

The Fisheries sub-activity will improve the administrative and technical capability of the RLG through on-the-job training and participant training programs. The on-the-job training is conducted by Japanese contract specialists working with Lao employees. This training involves feeding, spawning and breeding techniques, water and environmental control, predator control and administration. In conjunction with Extension, 26 farmers' leader training courses were held in FY 69. These courses introduce the farmer to fish culture both in paddies and ponds. This program will be continued and expanded in order to popularize fish culture.

Rehabilitation and development on existing stations at Nong Teng, Luang Prabang and Pakse have been underway since the beginning of the project in 1966. Completion of all construction is scheduled for FY 70. Facilities constructed to date include spawning ponds, hatching ponds, fingerling nursery ponds, breeding stock ponds, warehouses, offices, laboratories, feed preparation kitchens, garages, dams, fish packing and sorting facilities, fencing against predators, sedimentation tanks for filtering water, improving the water supply and drainage systems, and protection against floods.

Each of the stations will be capable of producing fingerling marketable fish for sale, and able to help pay for the project costs after USAID support is withdrawn. Fingerling production is planned to reach 2,800,000 per year; at 3 Kip per fingerling this will bring in K 8,400,000. Marketable fish production is planned to reach 65 metric tons by the end of FY 71. This would bring in K 32,500,000 at the present market price of K 500 per kilo. This income should adequately cover the operational expenses of all 3 fish stations, estimated at about K 26,000,000 per year.

B. Marketing

1. Agricultural Development Organization (ADO)

ADO was established in 1965 as a joint RLG/USAID agency for the purpose of developing commercial markets for modern production inputs, supplying farm credit with which to buy them and to insure a fair price for the surpluses resulting from improved production practices.

ADO has established over 100 consignment merchants and will continue to expand the merchant sales program throughout Laos. These merchants are provided such inputs as agricultural tools, fertilizer, and insecticide on consignment. The commodities are procured by USAID PIO/C and are granted to ADO as a capitalization contribution. The proceeds from sales are put

into an ADO revolving fund to resupply the needed inputs. The major sales of ADO are made by sales/credit agents who are ADO employees.

ADO presently has over 80 credit agents whose functions can be divided into two areas: a) selling production commodities for cash or on credit including loan collections in cash or in kind; and b) purchasing rice paddy. ADO has been involved in a seed multiplication program for several years by contracting with farmers to plant the seed for multiplication purposes. Originally this program was implemented for selected local varieties and later for IR-8 and IR-5. It is presently being used for IR-253 and other improved varieties suitable for Laos.

Once ADO has obtained enough improved seed for widespread diffusion it then sells it (on credit) to farmers with the requirement that fertilizer be purchased at the same time. This requirement is necessary or the improved seed will not produce significantly more than native varieties. Additional ADO projects include the introduction and credit sales of farm equipment and irrigation pumps. Irrigation associations are being organized for pump irrigation projects.

C. The Pa Mong Project

The U.S. Bureau of Reclamation, financed by A.I.D. regional funds, is presently investigating the feasibility of constructing the Pa Mong Dam near Vientiane. This dam is acknowledged as the key project of the overall plan to develop the Mekong Basin. The benefits which could be derived from it are immense - - from 2.8 to 4 million kilowatts of power, plus water sufficient to irrigate perhaps as much as 2 million hectares in Laos and Thailand. While the major benefits of irrigation will fall to Thailand, the Vientiane Plain in Laos will be served by Pa Mong water. The benefits of abundant cheap power, flood control, and improvements to navigation on the upper Mekong, however, make the project an attractive one for Laos. The final feasibility report will be completed in mid-1971; construction would take nine years, while the total cost of the project is estimated at $1 billion.

IV. Other Donor Assistance to Agriculture

Bilateral aid from other friendly countries to the agricultural sector has assumed significant proportions in the last few years. Japan has since 1966 sponsored and staffed the 100-hectare Lao/Japanese Demonstration Farm carrying out the training of Lao agricultural personnel and the testing and development of new plant varieties and agricultural and livestock production techniques. Japan has also designed and will partially finance

the $1.1 million 800-hectare Tha Ngon Development Area adjacent to the demonstration farm. Other assistance to the agricultural sector was provided in 1968 when Japan under the Kennedy Round donated some $200,000 worth of pumps and agricultural machinery to assist the accelerated rice production program. Further assistance of this type may be forthcoming in 1969.

The United Kingdom also has materially assisted the rice program with gifts of water pumps, tractors and other agricultural machinery valued at about $150,000 in the last two years. An additional $90,000 has been contributed toward the construction, in conjunction with USAID and the FAO, of a soils laboratory for the Direction of Agriculture.

Australia has made available numerous scholarships, the services of technicians, plus several tractors and other items of machinery valued at about $1.2 million since 1964.

Israel has since 1965 contributed the services of two experts to operate an experimental farm near Vientiane. In 1969 Israeli experts commenced design work on a 5,000-hectare irrigation project; recently New Zealand agreed to continue this design project after Israel asked to be relieved of it.

GODLEY

AIRGRAM

DEPARTMENT OF STATE

439-065 4

UNCLASSIFIED
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For each address check one ACTION | INFO

DATE REC'D. 85p 439

TO - Amembassy VIENTIANE AIDTO A 29

DATE SENT 1-24-70

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OTHER AGENCY

FROM - A.I.D./Washington

SUBJECT - Agricultural Development Project

REFERENCE - State 197[illegible]83

During the PROP review of the subject project a number of issues were raised with the recommendation that the Mission submit its assessment of the issues before FY 1971 funding approvals are given. This was discussed in part when Meinecke and Rasmussen reviewed the PROP in December. We would like to have your assessment and any other comments or information you believe appropriate to our clearer understanding of this project. We require all information NLT March 1, since Dr. Hannah is expected to personally review the project shortly thereafter. Issues follow:

1. Should the project go through FY 1[illegible]0 when rice self-sufficiency is expected by FY 1975?

2. In revising targets downward to self-sufficiency in major foods (i.e. rice) were the level and nature of inputs accordingly revised?

3. What effect will the self-sufficiency targets and the proposal to concentrate efforts on major deficit production/marketing areas have on such surplus rice areas as Pakse?

4. What are the possibilities of diversification for present rice surplus producing areas?

5. What plans are now being made to overcome rice surplus problems in areas being brought under year round irrigation?

6. The PROP appears still to call for substantial imports of fertilizer, presumably for countrywide distribution. Is it necessary or desirable to import large amounts to meet what are essentially local rice deficits?

PAGE 1 OF PAGES 3

DRAFTED BY	OFFICE	PHONE NO.	DATE	APPROVED BY:
RThompson:lkb	EA/SEA/Laos	29[illegible]74	1/23/7[illegible]	EA/SEA:WEMeinecke

AID AND OTHER CLEARANCES
EA/TECH:DDavis (phone)

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CLASSIFICATION

AID 5-39 (9-62) (Do not type below this line) PRINTED 12-63

Would a combination of improved water management, local seed varieties, selective use of limited amounts of fertilizer and other measures suffice?

7. Can the plan to phase out ADO from direct handling, stocking and selling of fertilizer be implemented by the end of FY 1975 as indicated in the PIP?

8. Are the major capital-type contract irrigation projects that are foreseen as a part of the Vientiane Plain rice production effort essential to reach the self-sufficiency target? The PROP projects a theoretical total production increase of 169,000 M/T of milled rice by the end of FY 1972 using improved practices and fertilizers. This more than doubles the current 5[illegible]-70,000 M/T deficit level, and would be achieved even before the first 10,000 hectares of contract construction could be brought under irrigation command. Even through actual production increases are apt to fall short of the theoretical increase, present irrigation plans seem to go considerably beyond a FY 1975 self-sufficiency target.

9. With the exception of showing a phaseout of its direct merchandising activities (fertilizers, insecticides, tools, etc.) by FY 1972, neither the PIP nor the PROP indicates how ADO is to be reorganized to apply its resources to the deficit areas of primary concentration, and whether or not its operations elsewhere are to be scaled down or eliminated. The PIP appears to continue a countrywide effort. To what extent can the ADO organization and activities be reduced and redirected towards the self-sufficiency targets?

10. What is your present evaluation of the marketing situation in the Vientiane Plain deficit area? What progress has been made in the problem areas (milling capacity, drying and storage capacity, feeder roads, etc.) presented in the PROP? What is the plan for surmounting those problems that will otherwise hinder progress towards self-sufficiency?

11. Given the fact that the lack of infrastructure prevents normal movement of commodities from one region to another, what plans does the Mission or Directorate of Agriculture have for the development of market analyses and marketing studies for the various regions?

12. What adaptive trials or plans are in store for partially solving the rice production problem in the hill tribe areas? We believe that there is a possibility of maintaining fertility and hence yield on the better hill rice sites through use of newly developed slow release fertilizers.

13. What would be the comparative costs of purchasing and airlifting rice to Sam Thong versus full development of the limited irrigation potential in that area versus providing fertilizers and developing new production techniques for hill rice?

14. With work postponed on a Luang Prabang-Sayaboury land route, can nearly all the expected annual production of 12,0 M/T in the Nam Tan area be directed towards the Luang Prabang deficit as inticipated in the PROP? If not, how will this deficit be met?

We have just received copies of the Mission's Evaluation of the Accelerated Rice Production Program, 1957-1969. There has not been sufficient time to give it the careful attention it deserves before sending this message. A first review however suggests that the document contains the basic information for preparing the requested assessment. Please submit your assessment and supporting information in whatever format you deem best suited for the purpose. A PROP revision is acceptable but not required if the present PROP can be reinforced without being revised. A PIP revision may be desirable, but the Mission can better determine this after revaluating the project.

We note your comments in the Evaluation (pp. 177-9) concerning the difficulties involved in attempting cost/benefit analyses. To the extent possible however we request that you apply either this type of analysis or another similar type, i.e., internal rate of return or sensitivity (probability), in assessing the issues.

ROGERS

AID 1320-24 (10-69)

AGENCY FOR INTERNATIONAL DEVELOPMENT (A.I.D.)

4

PROJECT AUTHORIZATION

1. PROJECT NUMBER	3. COUNTRY	4. AUTHORIZATION NUMBER
439-11-190-065	Laos	0039

2. PROJECT TITLE

Agriculture Development

5. AUTHORIZATION DATE 19 70

6. PROP DATED

A.I.D. Reference Center Room 1656 NS

7. LIFE OF PROJECT

a. Number of Years of Funding: 17
Starting FY 1963; Terminal FY 19 79

b. Estimated Duration of Physical Work After Last Year of Funding (in Months): 12

8. FUNDING BY FISCAL YEAR (in U.S. $ or $ equivalent)

	DOLLARS		P.L. 480	LOCAL CURRENCY Exchange Rate: $1 =			
				U.S. OWNED		HOST COUNTRY	
	GRANT	LOAN	CCC + FREIGHT	GRANT	LOAN	JOINTLY PROGRAMMED	OTHER RLG Budget
Prior through Actual FY 69	10,600			1,480		1,488	682
Operational FY 70	2,147			462			
Budget FY 71	2,147			465			
B + 1 FY 72	2,462			540			
B + 2 FY 73	2,574						
B + 3 FY 74	2,168						
All Subsequent FY's	10,120			3,594			
TOTAL	32,218	1/		6,541		1,488	682

9. DESCRIBE SPECIAL FUNDING CONDITIONS OR RECOMMENDATIONS FOR IMPLEMENTATION, AND LIST KINDS AND QUANTITIES OF ANY P.L. 480 COMMODITIES

1/ Some $1,500,000 was obligated for agricultural activities between 1956 and 1962, when A.I.D. assistance was interrupted for political reasons. The present agriculture project was initiated in FY 1963.

Project funding will be reduced by an estimated $10 million between now and FY1979. Much of the reduction will be in irrigation activities, as will be reflected in a revised PROP due from the Mission about May 1.

10. CONDITIONS OF APPROVAL OF PROJECT

Reviewed by the Administrator, March 12, 1970.

Subject to review by the Assistant Administrator for East Asia for FY 1971.

Subject to review by the Administrator for FY 1972.

(Use continuation sheet if necessary)

11. Approved in substance for the life of the project as described in the PROP, subject to the conditions cited in Block 10 above, and the availability of funds. Detailed planning with cooperating country and drafting of implementation documents is authorized.

This authorization is contingent upon timely completion of the self-help and other conditions listed in the PROP or attached thereto.

This authorization will be reviewed at such time as the objectives, scope and nature of the project and/or the magnitudes and scheduling of any inputs or outputs deviate so significantly from the project as originally authorized as to warrant submission of a new or revised PROP.

A.I.D. APPROVAL	CLEARANCES	DATE
	EA/SEA:HALevin	4/6/70
	EA/SEA:WHMeinecke	3/12/70(Review
	EA/TECH:DDavis(subs)	
	EA/DP:CHBreecher	3/12/70(Review
	AA/EA:RLO'Connor	3/12/70(Review
	A/CONT	

For J. A. Hannah
SIGNATURE

A/AID
TITLE

4/23/70
DATE

AID 1020-24 (10-69)

AGENCY FOR INTERNATIONAL DEVELOPMENT (A.I.D.)

PROJECT AUTHORIZATION

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439-11-190-065	Laos	0039
2. PROJECT TITLE		5. AUTHORIZATION DATE
Agriculture Development		1970
		6. PROP DATED

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Rec'd Ltr Post	EA/SEA:HALevin	4/6/70
for J. A. Hannah	EA/SEA:WHMeinecke	3/12/70 (Review)
SIGNATURE	EA/TECH:DDavis (subs)	
Acting A/AID	EA/DP:CHBreecher	3/12/70 (Review)
TITLE	AA/EA:RLO'Connor	3/12/70 (Review)
4/23/70	A/CONT	
DATE		