

UNITED STATES OPERATIONS MISSION TO THAILAND



THAI - AMERICAN
ECONOMIC AND TECHNICAL
COOPERATION

NOVEMBER 1962

THAI - AMERICAN
ECONOMIC
AND
TECHNICAL
COOPERATION

NOVEMBER 1962

TABLE INDEX TO
CONTENTS

●
GENERAL INFORMATION
ABOUT THAILAND



USOM AND ITS
OPERATION



PROJECTS
COSTS & DESCRIPTIONS



UNITED STATES OPERATIONS MISSION
BANGKOK, THAILAND

Preface

This report is an unclassified, essentially non-technical presentation of the past and present activities of the U. S. economic aid mission to Thailand (USOM). It has been prepared for general distribution to businessmen, journalists, representatives of foreign governments and international organizations, members of study groups, and to any individuals who are interested in acquiring background information of the U. S. aid program.

The report comprises primarily a narrative description of current and completed USOM projects. It also contains a summary of financial data by activity sector. These figures are intended principally for illustrative purposes; thus persons interested in a detailed study of project financing are referred to the USOM Thailand Financial Report, which is published semi annually and contains a far more comprehensive financial accounting, but without narrative description.

Project descriptions in this booklet are current through the end of fiscal year 1962 (June 30, 1962). In a few cases, certain important events occurring since that date related to a project's development have been included, but new activities begun in fiscal year 1963 and thereafter have been omitted.

GENERAL INFORMATION

ABOUT THAILAND

UNITED STATES OPERATIONS MISSION

BANGKOK, THAILAND

Thailand

General Information

NATURAL RESOURCES

Climate and Topography: Over most of Thailand, a warm wet southwest monsoon lasts from May to November and is followed by the relatively cool and dry northwest monsoon. February to May is the hot, dry season. In the southern peninsular region, it is rainiest during the dry season of the rest of the country. The country can be subdivided into four regions. Central Thailand, which is drained by the important Chao Phya River, is the geographic and economic heart of the country. In the mountainous, forested, Northern region, agriculture is largely limited to the fertile valleys of the Chao Phya tributaries. Farming is difficult in the flat rolling terrain of the Northeastern region because of water supply and soil fertility problems, yet one-third of Thailand's people live in this region and farm at little more than subsistence level. The small elongated Southern region has several sizeable coastal plains as well as a mountain chain running northwest which at times borders on the sea. Thailand is bounded on the north and west by Burma, on the northeast and east by Laos and Cambodia, and on the south by Malaya. It has a long coast line on the Gulf of Thailand and, in the South, on the Indian Ocean.

Area: 198,000 square miles, about the size of Spain, three-fourths the size of Texas.

Agricultural Land: 15 percent of the land area, about average for the Far East. Per capita agricultural land of about 0.9 acres is also about average for the area. The climate and topography favor rice growing which accounts for three-fourths of the cultivated land. Average size of farm is 10 acres; farms in the North are less than half the average for the country. In order of highest average net farm income are the Southern, Central, North and Northeast regions; average net farm income in the Northeast is usually only one-quarter that of the Southern region. More than 80 percent of farmers own their land.

Principal Crops: Rice is by far the largest crop, and Thailand is one of the world's largest rice exporters. Rubber, a major crop, is growing in importance. Cotton, peanuts, fruits, sugar cane, coconuts, tobacco, castor beans; corn, peas, cassava, and various fibers (kapok, kenaf, etc.) are also grown.

Forests: About 63 percent of the land is forested (world average 29 percent), but much of this is scrub timber. Teak is the most important forest product. In the north, lac output is valuable. Much wood goes into charcoal for home consumption. Resins and oils are also extracted from forest trees.

Fisheries: Both salt and fresh water fishing are important in Thailand, as fish is an essential part of the diet and fisheries are the second industry in extent and value. The rivers, canals, ponds, rice fields, and irrigation tanks are good breeding grounds.

Minerals: Tin reserves amount to about 16 percent of the free world total; tungsten reserves are also important. Relatively small deposits of gold, manganese, molybdenum, antimony, asbestos, lead, zinc and copper are found. Limestone, gem stones, and marble are exploited on a small scale. Very large deposits of salt and gypsum are known, and several deposits of high-grade iron ore have been found.

Fuels: Woods, lignite and rice husks are used as sources of energy. Household fuel is mainly charcoal. A large lignite deposit is being worked in the North (Mae Moh) and smaller deposits occur elsewhere in the Kingdom. Thailand's growing requirements for petroleum products are met from imports.

River Resources: The most important river and canal networks are concentrated in the area around Bangkok. There are few sites suitable for power near Bangkok but there are many small potential sites in the North and South. The Yan Hee multipurpose project being developed with World Bank assistance is a major long-term project to exploit the Chao Phya River. The Mekong is being surveyed from the standpoint of regional development. It is one of the world's last unexploited river basins with vast hydro-electric power potentials.

Distribution of GNP: Gross national product for 1961 was about \$2.5 billion or about \$100 per capita (compared with \$174 for Far East region \$2,700 for U. S.). Agriculture, forestry and fisheries contribute about 37 percent of the GNP; trade, finance, commerce and transportation 31 percent; manufacture and construction 20 percent; and services 12 percent.

HUMAN RESOURCES

Population: Thailand had an enumerated population of 26.3 million at the last census on April 25, 1960; the population on July 1, 1962 was an estimated 28.7 million; corrected for under enumeration in 1960. The current annual rate of natural increase is estimated at 3.1 percent, based on an estimated crude birth rate of 45 per 1,000 population and an estimated crude death rate of 14 per 1,000 population. On the basis of the 1960 enumerated count, Thailand has a population density of 132 persons per square mile; by region, the number of persons per square mile was 207 in the Central Region, 137 in the Northeast Region, 122 in the Southern Region, and 88 in the Northern Region. Thailand has 120 municipal areas, and the population of these - 3.3 million in 1960 - may be taken as roughly the urban population of the country. There are only two large cities; Bangkok and Dhonburi with populations of 1,300,000 and 404,000 respectively in 1960. The third largest city in Thailand - Chiangmai - had a population of only 66,000 in 1960. Most of the population of Thailand is native-born (98.1 per cent in 1960); of the less than 500,000 persons born outside the country, 384,000 were born in China. Most persons (97 percent in 1960) were able to speak Thai. Buddhists are predominate (93.6 per cent in 1960); Muslims numbered one million, Confucists 461,000, and Christians 150,000.

Labor Force: Roughly 82.3 per cent of the people eleven years of age and older are engaged in activities related to agriculture, forestry, and fisheries. Of the remainder of the labor force the distribution is as follows: 1.3 professional, technical and related workers; 0.2 - administrative, executive and managerial; 1.1 clerical; 5.3 sales; 0.2 miners, quarrymen and related workers; 1.0 transport and communications; 5.9 craftsmen, production process and laborers; 2.0 services, sport and recreation; and 0.7 not classifiable by occupation.

Education: Educational facilities are expanding, and the literacy rate (currently estimated at 62 per cent) is rising. Four years of school attendance was made compulsory in 1932 and over 90 per cent of children of "compulsory school age" are presently in school. In 1962 the National Assembly passed legislation authorizing the Ministry of Education to implement seven years of compulsory schooling in selected provinces. There is an average of one teacher per 175 population (US, one per 120 population). There are about 25,000 primary and primary extension schools, 900 secondary, 200 technical, 34 teacher training and many special schools. Seven universities have a total enrollment of over 45,000 students. The 1947 census showed less than 6,200 college graduates in the Kingdom, but more than 3,100 graduated in 1961 alone. Students comprise about 16 per cent of population (US 20 per cent), with over 4.5 million in primary and secondary schools. The growth in school enrollments in Thailand since 1951 (about 150,000 per year) has created a demand for trained teachers that far exceeds the supply. Not only is there a shortage of teachers but those already employed are inadequately trained. About 60 per cent of the teachers have had no formal training for teaching, and of those who have had formal training the majority have had only one or two years beyond grade 10.

Health: The most important causes of ill health in Thailand, and of death in infancy and young childhood, are the result of poor sanitation. Thus, the intestinal infections and parasitic infestations head the list, now that malaria has been removed from first place. The daily caloric intake of food is adequate, but vitamin deficiency diseases are not infrequent, due largely to the practice of using machine methods to polish rice. The ratio of physicians to population is approximately 1:10,000 for the entire Kingdom, varying from 1:1400 in the Greater Bangkok area, to 1:70,000 in a large part of the country. There is an average of one hospital bed for every 1,000 persons. This fluctuates also with differing parts of the country. There are 81 provincial hospitals in the 71 provinces. Medical education is controlled by the Government as are most medical facilities. Approximately 70 per cent of professional medical people are employed by the Government.

TRANSPORT, POWER AND INDUSTRY

Railroads: About 2200 miles of track radiate to all major regions from Bangkok, making connections with principal Thai cities as well as with Cambodia and Malaya and to the Mekong river near Vientiane, Laos. Although railroads carry the largest per cent of total rail, canal and highway freight, the system is still inadequate for current needs and there is a large unfilled demand for rolling stock and new construction.

Highways: While roads carried 20 per cent of all rail, canal and highway freight in 1956, the 6000-7500 miles of highways need considerable improvements and connecting roads. Roughly 60 per cent are all-weather roads but few permit carrying heavy loads long distances. Most freight use of roads is to connect with rail and water carriers. The Friendship Highway from Saraburi to Korat (148 kilometers) and the East-West Highway from Pitsanuloke to Lomsak (125 kilometers) have been completed by American contractors. By the end of 1963 over 1000 concrete bridges will replace wooden structures on the primary highway systems.

Waterways: River canals carried 20 percent of all rail, canal and highway freight in 1956. The four main canal systems, all in the central plain, are heavily traveled. Great deal of freight moves on Chao Phya River and its tributaries.

Ports: Bangkok is the only large port, opened (by dredging) to ocean-going vessels in 1954.

Air Transportation: Bangkok has a modern air terminal capable of handling modern heavy aircraft and is well served by many international air carriers. Major towns of Thailand are connected by government-owned Thai Airways.

Electric Power: Thermal and diesel power facilities (there is no hydroelectric power) meet minimum needs of Bangkok and larger provincial towns. Per capita output is low despite recent increases in generating capacity. By the end of 1963 the Yan Hee multipurpose hydroelectric project will add 140 MW to generating capacity and will ultimately develop 560 MW as well as provide Thailand with an integrated power system.

Manufacturing: Thailand's small-scale industrial base, devoted to processing rice, rubber and forest products and manufacturing cement, gunny bags, textiles, paper, sugar and light consumer goods, is expanding. Lack of power has been large factor in holding back development. However, the Yan Hee Dam and other power projects will improve this situation. Policy of Thai government is to encourage private investment and numbers of foreign manufacturers are showing interest in Thai branches.

Mining: Output of tin and tungsten is of major importance. Iron, gold, and manganese are produced in small quantities. There are important lignite deposits in Northern Thailand and a gypsum mine has recently been developed.

FOREIGN TRADE PATTERN

Exports: From 1960 to 1961 exports increased sharply from approximately 405 to 473 million dollars due primarily to a large increase in the export of rice and kenaf. During the next few years the export level is expected to rise slightly but at a much lower rate due to the fact that the increased population growth will reduce the amount of rice available for export. Though Thailand has diversified its exports to some extent in recent years, particularly an increase of upland crops, rice remains the major export commodity. Rice, rubber, tin, kenaf, maize, teak and tapioca, in that order, are export commodities of greatest importance.

Imports: Imports have been rising at an average rate of about eight per cent per year reaching the level of \$480 million in 1961. They will probably continue to rise at an increased rate in future years due to development loans and increased private industrial investment.

GOVERNMENT

The King of Thailand is a constitutional monarch. His Majesty King Phumipol Adulyadej is the ninth King of the Chakri dynasty, which has reigned over Thailand since the establishment of Bangkok as the capital of the Kingdom in 1782. Until 1932 the King had virtually absolute powers. Following establishment of the Constitution, the King exercised his legislative power through the National Assembly, his executive power through the Council of Ministers, which must have the confidence of the National Assembly, and his judicial power through the Courts, which are independent in the administration of justice. Since the peaceful revolution of October 20, 1958, the Kingdom has been covered under an interim Constitution and an appointed Assembly (which is to draft a new Constitution), while the Supreme Commander of the Armed Forces (Field Marshal Sarit Thanaraj) has plenary executive powers under a Royal Decree of Martial law.

The responsibilities of domestic administration are vested in the Ministry of Interior in a highly centralized system, approximately like that of France. There are 71 changwads (provinces) in Thailand, each headed by a governor appointed by the Ministry of Interior. Each changwad is divided into amphur (districts), each headed by a nai amphur or district commissioner. Below the district level there are locally-elected officials. For these purposes each district is divided into tambol (communes) and headed by a kamnan or commune headman; and each commune is divided into muban (hamlets) headed by a puyai-ban or hamlet headman. In addition to these government units, there are also municipal government units given local autonomy, the degree of which is based upon a concentration of population in the municipal area. The major municipalities, such as Bangkok, Dhonburi, and Chiangmai are headed by lord mayors and have as their legislative body a municipal assembly.

PEOPLE

The Thai people originally lived in southern China and centuries ago gradually emigrated into the fertile plains of the Chao Phya and Mekong rivers. They drove a wedge between the Mons on the west and the Cambodians (Khmer) on the east. Groups of these people and a number of those of other races and tribes remain in Thailand to this day. Towards the middle of the 13th century the Thai founded the Kingdom of Sukothai, and the Thai nation has existed with its own kings uninterruptedly for 700 years.

The culture of Thailand, as expressed in the religion of the people -- Buddhism -- arts and literature, social system, habits and customs, shows strong general affinities with their neighbors, the Mons, whose homeland is Burma, the Cambodians, and in some areas the Malaysians, but with special characteristics that have developed over the course of centuries. The cultural influence of ancient India is strongly evident.

LANGUAGE

The national language is Thai, similar to the language spoken in Laos and in the Shan States of Burma. It has its own alphabet, quite unlike the Roman. It is basically a monosyllabic language and it involves five tones, different tones giving different meanings to words. English is the second language of the country. Most educated Thai have some degree of fluency in English, which is taught in all schools beyond the fourth grade.

WEIGHTS AND MEASURES

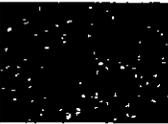
The metric system is in general use, though various traditional measures are used for simple trading. Kilometer is about 0.62 miles, kilo (kilogram) is 2.2 pounds, meter is about 39 inches, and liter is 1.06 liquid quarts. Traditional measures are widely used in local trading: One rai is 0.395 acre (0.16 hectare), one standard picul is 132.28 pounds (60 kg.), and one standard kwien is 528 U.S. gallons (20 hectalitres).

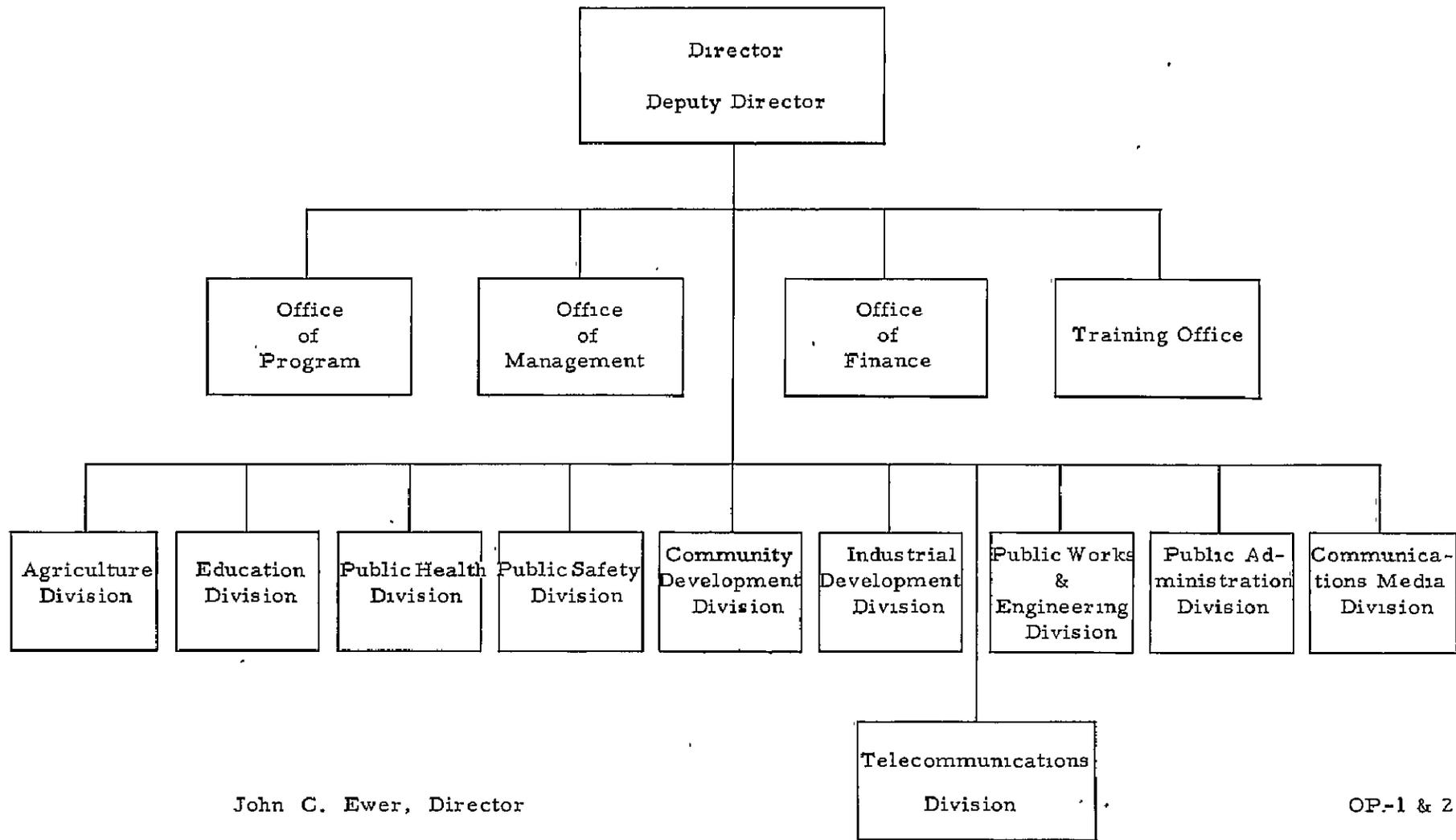
CURRENCY

The unit of currency is the Baht (Tical), which has been fairly stable in recent years at slightly over 20 Baht to the US Dollar. One hundred Satangs equal one Baht. The largest denomination of coin is one Baht, the largest banknote 100 Baht. Thailand has a free money market and there is generally little difference between the official (Bank of Thailand) rate of exchange and the money-changers' rates.

USOM AND ITS OPERATION

UNITED STATES OPERATIONS MISSION
BANGKOK, THAILAND





USOM Divisions and Functions

Office of the Director - Responsible for the overall technical, administrative and policy direction of the United States Operations Mission to Thailand.

Office of Management - Responsible for formulation of management policies and objectives to, and in support of Mission programs; review of programs and projects in the light of management requirements; necessary action to provide administrative support to Mission operation; necessary security measures for the protection of the Mission; evaluation of program performance in the light of management standards; and liaison with the American Embassy and other U. S. Government agencies with regard to administration and management matters relating to the Mission.

Office of Finance - Responsible for interpreting, directing, and executing the financial aspects of the Mutual Security Program as it relates to USOM/Thailand; development of budgetary and fiscal policies and standards for the Mission; implementation and management of the accounting, end-use and audit functions so as to provide sound and effective support to the operating program and; review and observation of A.I.D. financed assistance in general. Preparation of fiscal documents relating to disbursement of A.I.D. funds, and custodian of all such funds coming into possession of USOM.

Office of Program - Responsible for overall program planning, coordination, analysis and evaluation (including economic and other analyses for determination of areas of greatest need and areas in which achievement of objectives is most feasible and most likely to succeed); consultation with other U. S. Government agencies in Thailand in furtherance of A.I.D. objectives and operations (with particular reference to the Embassy Economic Section and the JUSMAG Program Office); reviewing and making recommendations as to uses and distribution of funds within approved aid levels, among the various projects, between fields of activity and among appropriation functions, consistent with established objectives, policies and programs; advice and guidance to the technical divisions and NEDB/TTEC regarding program planning, development, documentation, implementation and procurement; reviewing and evaluating the progress of programs and projects to ascertain that their implementation is consistent with approved objectives and policies and, where deviations exist, recommending corrective action; preparation of program planning, justification, operations and evaluation documents and reports (soliciting the assistance of other USOM divisions as required); continual evaluation of program performance and effectiveness; maintaining central liaison with host country, international and other agencies having an interest in program matters; and exercising such other functions as the Director may assign from time to time.

Office of Training - Is the central source of information and advice concerning the policies and procedures under which the A.I.D. participant training program is conducted. It assists the Program Office and the technical divisions in the review and evaluation of the training requirements of approved projects; assists the technical divisions in planning the participant training element of such projects, in the selection of qualified participants, and in the development of specific training programs; maintains liaison with other training agencies, especially those that also provide for the training of Thais abroad; develops policies and procedures intended to assist USOM divisions and technicians to keep in touch with returned participants and assist them to make effective use of their participant training; develops and assists in the administration of techniques for evaluating the effectiveness of the participant training program in Thailand; arranges, in cooperation with technical divisions, participant training in Thailand for participants from other countries; provides administrative support for the processing of Thai participants who have been nominated for training abroad, and makes the administrative arrangements required to meet the needs of participants who come to Thailand from other countries; maintains records on all aspects of the participant training program in Thailand, and prepares and issues periodic reports for the information of all persons concerned.

Agriculture Division - Provides technical advisory services and assistance to the Ministries of Agriculture and Cooperatives in the fields of Agricultural Extension and Research; Agricultural Credit, Marketing and Cooperatives; Agricultural Resources Management and Irrigation; Agricultural regulatory services and farm organizations. Provides advisory assistance for the improvement and development of agricultural education at the college level. Provides technical services and advisory assistance for improving the quantity, quality and utilization of agro-nomic, horticultural and livestock products and training of participants abroad in the agricultural sciences and practices. Responsible for American Embassy liaison with the Agricultural Attache' and Economics Section on Public Law 480 activities. Responsible for coordination of programs and activities with FAO and other multilateral and private assistance groups, and for coordinating USOM's fish and wildlife activities.

Education Division - Provides technical advisory services and assistance to the Ministry of Education in the fields of elementary, secondary, vocational, teacher training, and higher education; training abroad of participants in all aspects of education including administration, organization, and management, supervision, teaching techniques, arts and crafts and vocational subjects; training of local educators through public schools, vocational and teacher training programs and other educational facilities of Thailand; and leadership in regional programs in education.

Public Health Division - Provides technical advisory services and assistance to the Ministry of Public Health in public health administration, public health education, environmental health and malaria eradication; and to the University of Medical Sciences in medical and nursing education. It is also sponsoring training abroad in the various fields of public health and medical education, and local training through the Chiangmai Medical and Nursing Schools, the Chulalongkorn Medical School, the Children's Hospital, the Cholburi Training Center, the School of Public Health, and the Malaria Institutes at Chiangmai and Phrabuddhabat.

Public Safety Division - Provides technical advisory services and assistance to the Thailand National Police Department, a Division of the Ministry of Interior, in organization and administration, police education and training and police operational techniques, including criminal records, finger printing, scientific criminal investigation, communications, identification, border protection, highway patrol and motor vehicle maintenance and control.

Community Development Division - Responsible for technical and advisory service and assistance to the Thai Community Development Program, including the National Community Development Policy and the National Executive Coordinating Committees, and the Department of Community Development located in the Ministry of Interior, relating to questions of coordinated participation between various ministries in the national program, the orientation of administrative officials and representatives of the subject matter ministries to Community Development concepts and practice, the training of community development workers and of local leaders in the planning and operation of Community Development projects and fostering the development of institutions of local self-help government; Services the Mission Community Development Committee set up under USOM Policy Order No.64 "to secure coordinated planning of USOM activities related to local public services, through stimulation of participation and support by appropriate counterpart ministries in such planning as a part of the over-all Thai Community Development program."

Industrial Development Division - Supports the economic development of Thailand by encouraging both domestic and foreign private investment in manufacturing, agricultural processing and mining enterprise by working with TTEC and the Ministries of Finance and Industry; to furnish policy guidance and technical assistance to the IFC of Thailand; to act as liaison with the DLF and IFC. Works with and advises the Board of Investment. Provides technical assistance to industry and the Asian Productivity Organization.

Telecommunications Division - Responsible for implementation of the Regional Telecommunications Project (Construction) under Contract ICAc 1304 presently rests with Television Associates of Indiana. However, a contract was signed on October 11, 1962 with the Collins Radio Co. of Dallas Texas for the implementation of the toll network. The Division has been set up separately in USOM because of the specialized technical and administrative problems involved. To assure effective coordination, the Thai Government has, on the recommendation of USOM, established a special counterpart group, Telecommunications Project Administration Office (TPAO). Toll system construction, installation of new telephone plant and rehabilitation of existing facilities along with a comprehensive training program are project objectives.

Public Works & Engineering Division - Provides technical advisory services and engineering assistance to the Ministry of Communications and other appropriate ministries, in the construction of public utility type projects relating to area transportation, electric power, aviation, highways and water supply in Thailand; technical assistance in the formulation and implementation of projects within these areas; guidance and assistance to the Thai Government in the procurement and maintenance of construction equipment, and the administration of engineering and construction contracts within assigned area of responsibility.

Public Administration Division - Provides stimulation and technical guidance to various ministries and agencies of the Government in Thailand in improving their organizational structures, administrative practices and procedures; support and assistance to technical divisions of USOM on administrative problems in their counterpart ministries and agencies which are impeding progress of substantive programs or projects; assistance to the Government of Thailand in priority administrative areas which cut across all agencies.

Communications Media Division - Provides audiovisual and informational supporting services to all Thai-American cooperative projects. The Communications Media Division has both staff and line functions, supplying the following services: consulting and advisory services to the technical and management divisions; Public relations support to the Director's Office; production of USOM publications, reports, speech writing, briefing materials; preparation of public information material for U.S. releases; and pilot mass-media education and information material for use on radio and television. The Communications Media Division conducts liaison with USIS and the USIS/USOM liaison officer who is attached to the division. When required it conducts public opinion surveys, presampling end-use and effectiveness surveys of communications media. It has responsibility for the supervision and direction of the Thai-American Audiovisual Service (TAAVS), which is its production facility.

STATISTICS ON USOM AND CONTRACT EMPLOYEES
AND LOCAL EMPLOYEES AS OF OCTOBER 1, 1962

<u>USOM DIRECT</u>	<u>American</u>	<u>Thai</u>
PROGRAM	128	225
ADMINISTRATIVE	<u>25</u>	<u>60</u>
TOTAL	153	285
CONTRACT		
Air America	2	0
Norman P. Anderson	1	0
University of Hawaii/Kasetsart	4	2
Hurlbut/Industrial Finance Corporation	1	0
Indiana University/Thammasart University	3	0
Klemmer/NEDB	1	0
Loftus/Ministry of Finance	1	1
University of Michigan/Southeast Asia Regional English Project	9	6
Parker/NEDB	1	1
Public Administration Service	3	2
Colorado University/Chulalongkorn University	11	0
SEATO/University of Hawaii	6	5
Sverdrup & Parcel	2	5
Television Associates of Indiana, Inc.	29	79
Transportation Consultants, Inc.	9	77
Robert Wulff Contract	<u>1</u>	<u>2</u>
TOTAL	84	180
GRAND TOTAL	237	465

THE PARTICIPANT PROGRAM

One of the principal deterrents to economic and technological progress in newly developing countries is an inadequate supply of skilled manpower. The A.I.D. helps cooperating countries to increase their supply of skilled persons (a) by on-the-job training, as provided in the host country by U. S. technicians in their role as technical advisors, and (b) by the participant training program.

Under the participant training program, host country nationals are jointly selected by U. S. and host government officials for training which is designed to meet the needs of specific technical cooperation projects. The training must have a direct relationship to accomplishment of project objectives, and aside from the general requirements with respect to English language proficiency and good health, participants are selected on the basis of their professional qualifications and their expected ability to apply what they learn to the achievement of project objectives.

Thai participants have usually been selected from among the officers and employees of the cooperating agency of the host government. Circumstances may warrant the selection of participants from other sources, but in any event, the cooperating agency must agree to employ them for project-related tasks upon their return, and the participant must agree to accept or continue in such employment. Participant training may also be provided for persons employed in private enterprise when appropriately sponsored by an agency of the host government.

Participant training is not authorized solely for the benefit of the persons trained. It must always be project-related and project-centered.

Several types of training are made available under the A.I.D. participant program. These may be grouped as follows:

1. Academic training, which may or may not lead to a degree.
2. On-the-job training, such as road construction, where a participant would be programmed in actual construction work.
3. A combination of academic study with on-the-job training. This type of program requires study of theory and techniques, or laboratory experience, before undertaking on-the-job training.
4. Observation Visits. These are short-term programs, usually arranged for groups of participants, which affords them an opportunity to observe the methods being used abroad in the performance of professional or vocational activities, similar to those for which they are responsible in Thailand, and to confer with persons responsible for such activities abroad.
5. Workshops. Two to four-week regional programs of group participation, such as the Far East Rural Youth Workshop Meeting.

Almost 50 percent of the Thai participant program has been academic training.

Participant training may take place in the home country, in the U.S., or in a third country.

At the inception of the participant program, training was limited to the U.S., and the U.N. was providing training in the various U.N. member countries. However, as a result of a better understanding of the needs and cultures of the countries where the technical co-

operation program was in operation, it became apparent that other countries had a great deal to offer, especially since the environment and stage of economic and technical development are more nearly akin to life and conditions in the countries requiring participant training. Third-country training may be in a single country or multiple countries. Principal third countries utilized by Thailand are Japan, Taiwan and the Philippines. A few have been programmed in Ceylon, India, Korea, Pakistan and England. Nearly all Thai, third country training has been for observation visits, usually in several countries, or participation in workshops.

For a number of projects participant training programs have been developed which combine a carefully planned intensive period of study in Thailand with training abroad. Such programs provide the best assurance that knowledge and ideas derived from training abroad will be effectively related to project needs in Thailand. As training resources and skills are developed in Thailand, it is expected that an increasing number of participants will receive a substantial part, if not all, of the training they require through carefully planned use of training facilities in Thailand.

Participant training has been a part of the technical cooperation program in Thailand since the inception of that program during the fiscal year 1951. In that year, training was authorized for 78 Thai participants, all of whom were trained in the United States. Four of the participants funded during FY 1955 had training in third countries, as well as in the U.S. During FY 1956, 182 participants were authorized for training in the U.S., 28 for training in third countries, and 9 for training in the U.S. and third countries. For the fiscal year 1962, 119 participants were programmed for training in the United States. Of these, the greater number are receiving academic training. One Hundred Eighty were programmed for training in third countries. Of these, most will receive observation training. Seven have been programmed for training in the United States and one or more third countries.

The following tables show (1) the number of units of participant training programmed from 1951 through June 30, 1962 by functional field of training, and (2) the number of training units which had been completed during the same period.

TABLE 1. NUMBER OF UNITS OF TRAINING PROGRAMMED FROM FY 1951 THROUGH FY 1962 BY FUNCTIONAL FIELD OF TRAINING

Field of Activity	U. S.	3rd.	Total
Agriculture and Natural Resources	442	375	817
Industry and Mining	143	1	144
Transportation	227	18	245
Labor	14	-	14
Health and Sanitation	418	45	463
Education	684	231	915
Civil Police Administration	97	49	146
Public Administration	288	52	340
Community Development and Social Welfare & Housing	16	34	50
General & Miscellaneous	72	5	77
TOTAL	2,401	810	3,211

TABLE 2. NUMBER OF COMPLETED UNITS OF TRAINING FROM FY 1951 THROUGH FY 1962 BY FUNCTIONAL FIELD OF TRAINING

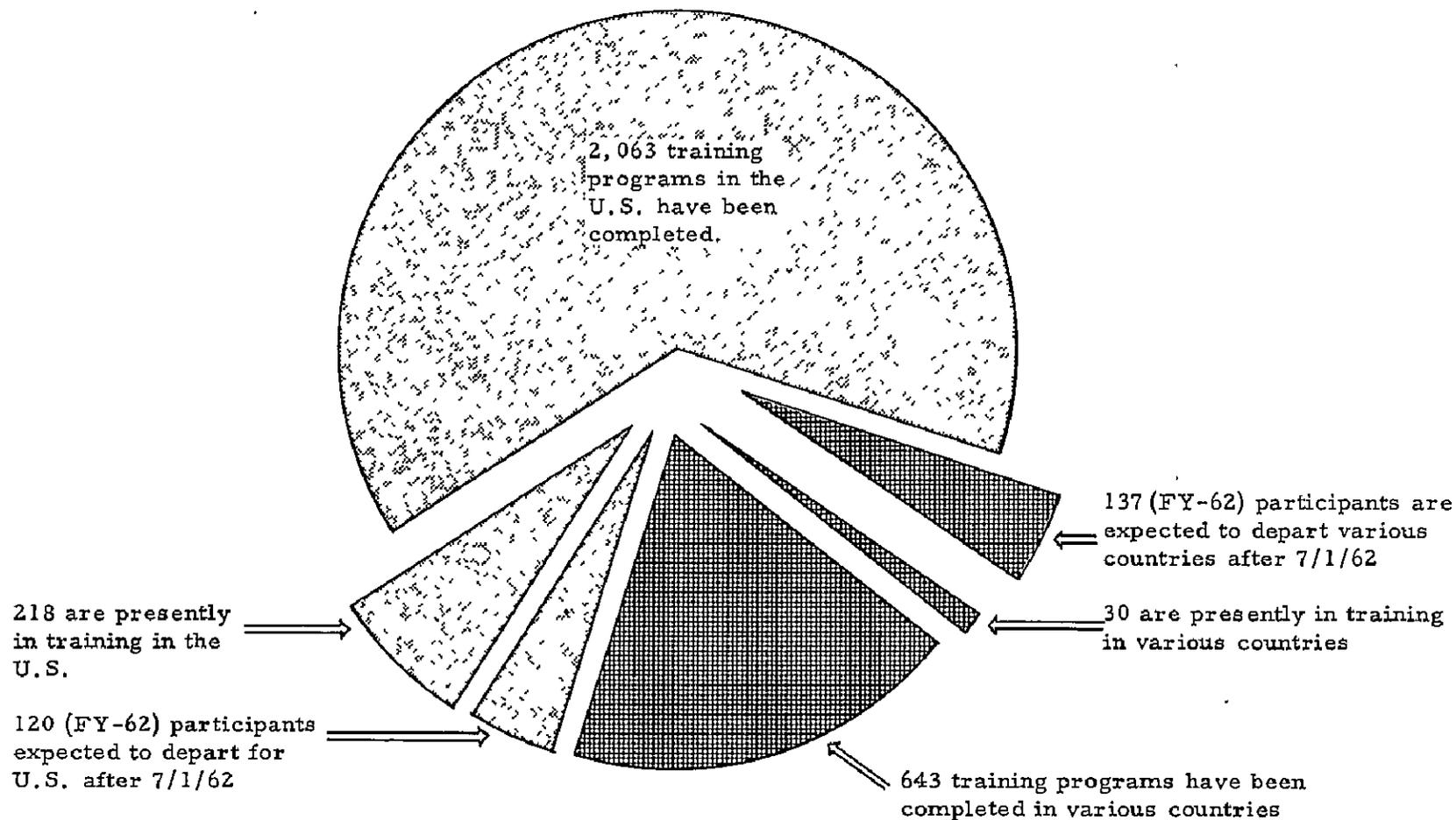
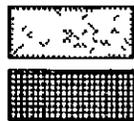
Field of Activity	U. S.	3rd.	Total
Agriculture and Natural Resources	398	338	736
Industry and Mining	113	1	114
Transportation	208	18	226
Labor	14	-	14
Health and Sanitation	356	29	385
Education	571	155	726
Civil Police Administration	85	37	122
Public Administration	240	50	290
Community Development and Social Welfare & Housing	10	10	20
General & Miscellaneous	68	5	73
TOTAL	2,063	643	2,706*

*During the period from FY 1951 through FY 1962, 191 Thais completed two or more training programs. The total number of different Thais who had completed training programs is 2,485.

The following pie chart shows the status of participant program training from FY 1951 through FY 1962.

STATUS OF PARTICIPANT PROGRAM TRAINING FROM FY 1951 THROUGH FY 1962

1. 2,401 have been authorized for U.S. training.
2. 810 have been authorized for 3rd country training.



TRAINING OF THIRD-COUNTRY NATIONALS IN THAILAND

Third country training in Thailand is a jointly sponsored program of the governments of Thailand and the United States. It is designed to provide training and observation in Thailand for participants from other countries, especially in Southeast Asia, as a cooperative contribution to the economic development of these countries. Training may range from several days of observation to enrollment in Thai educational and training institutions. Upon receipt of an official request for training, USOM/Thailand initiates appropriate action for planning and implementing program activities with the various agencies of the Thai Government, and supervises administrative arrangements.

Third country training in Thailand began in FY 1954, when funds were provided for 17 participants from Indonesia to study police training, and 2 participants from Korea to study commercial procurement. From that time to June 30, 1962, 825 participants have received training in Thailand. Participants have come from Cambodia, Afganistan, Ceylon, India, Indonesia, Iran, Japan, Jordan, Korea, Laos, Nepal, Pakistan, Philippines, Sudan, Taiwan and Vietnam. The majority of the participants, however, are from neighboring Laos.

Among the institutions, utilized for long-term training projects, have been the Kasetsart University, College of Education, Technical Institute, Ubol Teacher Training School, Udorn Teacher Training School, Karn Reun Home Economics Schools, College of Physical Education, the Malaria Eradication Center at Chiangmai, the Rural Health Training Center at Choburi, the Police Radio School at Korat, Siriraj Hospital, the Bangkok Arts and Crafts School, and the training centers of the International Civil Aviation Organization in Thailand.

The major field of training has been in education, followed by public health, agriculture, police training, public administration and civil aviation.

HOW PROCUREMENT IS MADE

1. Procurement financed by A.I.D. is done in the following manner:

a. Private importers receive allocations of foreign exchange and within the limitations contained in the Procurement Authorization (PA) import eligible items for resale with Thailand. This type of procurement in Thailand is presently restricted to petroleum, oils, and lubricants.

b. U.S. Government agencies procure by means of Invitations to Bid, negotiation or on a proprietary basis.

c. Contractors, under A.I.D. financed contracts, are authorized to do all or a portion of their procurement needs as specified in the contract.

d. USOM does not ordinarily procure program items except books and filmstrips.

e. The Thai Technical and Economic Committee (TTEC), Procurement and Supply Division, procures by means of Invitation to Bid, except in emergency situations requiring negotiated purchases or on a proprietary basis. Negotiated and proprietary purchases require prior A.I.D./W approval except TTEC may negotiate a total purchase under \$ 5,000 without such approval.

2. When procurement is done by GSA, that agency is named as the "Authorized Agent" on the Project Implementation Order/Commodities (PIO/C). If procurement is to be done by a U.S. Government agency other than GSA, to authorize, the agent block should be noted, "To be designated by A.I.D./W." USOM may not designate a U.S. Government agent other than GSA.

3. Contractors, under A.I.D. financed contracts, may be named in the PIO/C as the "Authorized Agent" on behalf of the Thai Government with Thai Government concurrence. They are required to follow A.I.D. regulation I when they purchase supplies or services, but they are not required to issue formal Invitations to Bid. The Thai Government is responsible for all procurement done by contractors. Dollar procurement by contractors is not usually done on a world-wide basis but is limited to the United States.

4. USOM procures all administrative supplies and equipment and most program technical support commodities which are necessary for the overall support of USOM technicians and administrative personnel.

5. When the procurement is done by the TTEC Procurement and Supply Division, the PIO/C lists "TTEC" as the "Authorized Agent." The manually signed PIO/C is sent by USOM to A. I.D./W to issue a letter of commitment to the banking institution listed in the PIO/C. At the same time a copy of the PIO/C is sent to the TTEC Procurement and Supply Division and an Invitation to Bid is issued and made public for a minimum period of 45 days to comply with the requirement of A.I.D./W Office of Small Business (OSB). Three copies of the bids are sent to OSB and the information is published in OSB circulars for the information of U. S. suppliers. Fifty copies are sent to the Thai Embassy in Washington, D.C. and made available to American business firms. Public opening and evaluation are held at the TTEC Procurement and Supply Division with representatives of the appropriate Thai Ministry or Department and USOM.

After awards are determined a Notice of Award is then published (copy to OSB/W) which lists the successful bidder(s) and when applicable, the reason(s) for rejection of the lower bid(s). Contracts are then prepared and application for opening the Letter(s) of

credit is sent to the Bank of Thailand (Foreign Exchange Control Section).

6. Procurement with counterpart funds is done by the TTEC Procurement and Supply Division if the value of the Counterpart Project Purchase Authorization (CPPA) equals or exceeds ₪ 20,000. The procurement is done by Invitation to Bid, except in emergency situations requiring negotiated purchases, and follows the procedure outline in Paragraph five, except that payment is made by the recipient Ministry or Department by check, no letter of credit is opened.

The TTEC Procurement and Supply Division does not handle construction contracts, regardless of cost.

Ministries or Departments may do their own purchasing if the value of the supplies or equipment is less than 20,000 Baht, or they may request TTEC Procurement and Supply Division to do the purchasing for them.

PROJECTS
COSTS & DESCRIPTIONS

UNITED STATES OPERATIONS MISSION

BANGKOK, THAILAND

Table of Project Obligations and Project Descriptions

Following are tables of project obligations and descriptions of each project grouped according to field of activity, as of June 30, 1962

In order to make a clearer and more concise presentation, many completed projects have been consolidated in the following recapitulation, either into continuing projects where they appropriately belong or with related projects no longer active.

All figures shown are obligations, not expenditures. Expenditures always tend to run less than current obligations, and final expenditures under a given project may not be made for several years. Obligations are adjusted currently, and the figures shown represent the most accurate estimates of what each project has cost or will cost. Expenditure data are in the USOM Financial Report.

Figures for "Thai Government Contributions from Regular Budget" are estimated and are not complete. These contributions are not made directly into the project budget, but are expenditures by the Thai Government in support of the project. Before 1956 this information was not systematically reported to USOM.

The general order of arrangement of projects under each field has no significance. The descriptions are in the same order as the tables. Regional projects follow Thailand projects under each field of activity.

For purposes of most readers, the "appropriation" source of funds for each project (Technical Cooperation, Defense Support, Direct Forces Support, Asian Economic Development Fund, etc.) has no special importance. In order to avoid further complexity, these source of funds have not been shown. They may be found in the USOM Financial Report.

AGRICULTURE AND NATURAL
RESOURCES

TABLE OF PROJECT OBLIGATIONS

Dollars - U.S. Dollar contribution
 C/P - Local currency costs from Counterpart Funds
 T/G Budget - Estimated Thai Government contributions from regular budget in baht and kind
 (All shown in terms of thousands of dollars)

Agriculture & Natural Resources	Life of Project	Cumulative through FY 1962			
		Dollars	C/P	T/G Budget	TOTALS
Irrigation & Water Conservation 493-X-12-AJ	1951-58	3,789	3,930	634	8,353
Agronomic Improvement 493-W-13-AB	1951-54	2,491	2,957	1,681	7,129
Agriculture Credit & Marketing 493-A-14-AD	1952-63	1,326	1,467	3,881	6,674
Livestock Industry Development 493-W-13-AC	1952-61	1,005	1,670	3,636	6,311
Improvement of Kasetsart University 493-A-11-AE	1952-65	1,534	2,144	562	4,240
Agriculture Extension 493-A-11-AB	1951 Cont.	1,506	1,453	1,598	4,557
Fisheries 493-X-18-AP	1951-57	695	419	913	2,027
Agriculture Resource Use & Conservation 493-X-12-(AA, AG, DI, AH, AI)	1952-64	683	760	408	1,851
Agriculture Statistics 493-X-14-AB	1955-58	60	62	44	166
Agriculture Leader Training 493-W-19-AE	1960-62	43	44	-	87
TOTALS		13,132	14,906	13,357	41,395
(Regional) Rinderpest Eradication 493-X-13-AK		94	226	-	-

Project Descriptions
AGRICULTURE & NATURAL
RESOURCES

IRRIGATION AND WATER CONSERVATION (493-X-12-AJ)

Inasmuch as semi-arid Northeast Thailand has few major water resources, the Thai Government in 1939 began construction of numbers of earthen-dam resevoirs for impounding run-off to alleviate the annual shortages of water during the dry season. In 1951 the U.S. began furnishing assistance for the expansion of this farm and village reservoir program.

By July 1958 the Irrigation Department had completed 110 reservoirs under this project, with 11 more under construction. They range in size from the domestic water supply "tank" at Roi-Et of 41,000 cubic meters to the 21,300,000 - cubic - meter reservoir under construction at Bunsan. A typical reservoir has a dam six to eight meters high, a capacity of some two million cubic meters, and can irrigate an area of about 600 rai (240 acres) for a second crop.

Engineering and construction of the reservoirs was carried out by the Royal Irrigation Department with financial assistance and equipment supplied by USOM. USOM support phased out in 1958.

Forty-eight engineers and officers of the Irrigation Department were sent to the U.S. for training under this project.

In addition, about \$419,000 worth of equipment was furnished under this project to the Irrigation Department for the construction of direct diversion and flood control works in the Northeast which directly benefit some 625,000 rai (250,000 acres).

Thirty-six power pumps for mounting on portable units were furnished for supplementary and emergency irrigation as needed in various parts of the Northeast.

AGRONOMIC DEVELOPMENT (493-W-13-AB - formerly CROP IMPROVEMENT)

Thailand is mainly an agricultural economy based on the growing of rice; the principal food of the people and the commodity most in demand in its export area.

Constant expansion of rice production is necessary both to accommodate a growing population and to maintain the major source of foreign exchange. Expansion of rice acreage produces diminishing returns because all the best wet rice lands were long ago put into intensive rice cultivation, and as more land is put into paddy there is a corresponding decline in yields per acre. Even the irrigation developments under way will keep only a step ahead of population -- now increasing at a rate of 3.1 per cent per year. At the same time, it is clear that from the standpoint of the national economy as well as of individual farming areas, diversification of crops is essential for a stable and prosperous agriculture, and the possibilities for diversification are enormous.

These considerations led to the establishment of the crop improvement project in 1951 to assist the Ministry of Agriculture to develop new and better adapted crop varieties, improve crop management practices, and find profitable crop uses for lands of marginal value.

Project Descriptions
AGRICULTURE & NATURAL
RESOURCES

AGRONOMIC DEVELOPMENT - Cont'd

The project has provided substantial assistance in the development of 13 agricultural experiment stations, including buildings, equipment, and on-the-spot training and supervision. These have been at Fang and Mae Jo (Chiengmai), Sri Samrong (Sukothai), Ban Mai Samrong and Non Sung (Korat), Roi-Et, Pliu (Chandhaburi), Kuan Kut (Patalung), Kor Hung (Songkla), Bangkok Noi (Thonburi), Saraburi, Surin, and Ubol.

About 68 Thai specialists have been sent to the U.S. for training and hundreds of technicians have been trained on the job and in short courses throughout the Kingdom. The introduction and testing of new and improved crops has resulted in widespread adoption of proved varieties. During 1959 and 1960 close to 3,000 farm demonstrations showed Thai farmers the merits of better varieties and produced improved seed for further dissemination. These emphasized both food crops and cash crops other than rice.

The rice improvement work, begun in 1951, was completed in 1957 (493-X-13-AL). Under that phase of the program, 11 rice stations were assisted with equipment and facilities as well as technical advice and direction. These were San Patong (Chiengmai), Bangkhen (Bangkok), Rangsit - two stations (Pratumdhani), Hantra (Ayudhya), Kok Samrong (Lopburi), Pimai (Korat), Surin, Kuan Kut (Patalung), Khon Kaen, and Sakonnakorn.

Under this program, over 200,000 varieties and samples of rice were tested. Promising varieties were tested further in over 25,000 farm trials. Fourteen of the most promising varieties were selected for multiplication, a program in which over 40,000 farmers have participated. By 1958 about one-sixth of the farmers in Thailand were growing improved varieties with yield increases of 10 to 80 percent and were receiving quality premiums of from 10 to 30 percent. At this point, with the program in full operation and with the full support of the Ministry of Agriculture, U.S. assistance was withdrawn from work on rice production.

Some of the crops that can be grown in rotation with rice are soybeans, peanuts, mungbeans, cowpeas, sweet potatoes, and green manures such as crotalaria juncea, sesbania, velvet bean, tephrosia, etc. Recently, a grain sorghum research program has been undertaken and over 200 introduced varieties are now being tested at research stations to determine the best varieties for each area of the Kingdom.

The use of lowlands suited to rice production, for alternate crops continued to be a problem. U.S. assistance was therefore extended to further a program of crop rotation and green manure use on rice lands. The rice committees were enlisted in testing and propagating other types of food, cash, and soil building crops.

Among the results of improvement of upland crops, the introduction of Guatemalan corn and Hawaiian sweet corn and consistent promotion of interest in improved corn have greatly expanded production of this crop. The 1960 corn crop was the largest on record -- 544,000 tons, compared with 42,000 tons in 1951. Yields have almost doubled since 1951. Breeding work is being carried out to develop three synthetic corn hybrids which will be higher yielding and better adapted to Thailand's conditions. Mass selection techniques on Guatemala flint corn are being used to develop higher yielding selections of this type of corn. In addition to corn, improved selections have been made in peanuts and sugar cane. A seed certification program for corn and Cuban kenaf is now underway.

Project Descriptions
AGRICULTURE & NATURAL
RESOURCES

AGRONOMIC DEVELOPMENT - Cont'd

At the beginning of 1960 the crop improvement project was expanded to include crop production in relation to land use. The fields of soil management and pasture production were incorporated in the program and the name of the project was changed to "Agronomic Development." A closer integration was achieved between this expanded project and both the "Agricultural Resources and Conservation" and the "Plant Protection" projects. This has enabled USOM's Agronomic Development program to deal with Thailand's problems of increased agricultural production, crop diversification and soil management by various approaches with a single concerted effort.

In 1960 the crop demonstration program was expanded from a single area of the Kingdom the Northeast, to include peninsula Thailand, plots along the Friendship highway and the Chiang-mai area. In addition to a broad program of seed multiplication which the project continues to assist, in 1960 twelve rai of foundation Guatemala corn seed were planted for multiplication under controlled supervision. Work was started below three of the Irrigation Department's tanks to investigate some of the improved agronomic practices which could be used to improve agronomic production on irrigated lands. In cooperation with the Agronomy Department of Kasetsart University, corn variety fertilizer trials were initiated to test the adaptability of fertilizer recommendations worked out at Thailand's experiment stations, on farms in areas where no such stations exist. Also in cooperation with the University, tests on a number of green manure crops are being made. A survey was conducted on the pasture and forage needs of Thailand, and studies have been initiated on areas where a pasture program can be of greatest assistance.

In the field of plant protection, research work is being carried forward in many areas such as protection of stored grain; identifying rice varieties resistant to gall midge, stem borer, balst, and stem rot; screening of insecticides to determine effectiveness against specific insects such as cut worm, corn borers, aphids, rice gall midge, etc.; introduction, rearing, and distribution of biological control agents of major crop pests; and determination of total extent of crop losses throughout the Kingdom to diseases and insects.

AGRICULTURAL CREDIT AND MARKETING (493-A-14-AD)

The objective of the project is to assist the Thai Government in improving agricultural credit and agricultural marketing services, and agricultural cooperatives.

This project began in 1952. During the first five years emphasis was placed upon development of family farm production conducted by members of land development and land improvement cooperatives.

Large amounts of equipment --deep-well pumps, trucks, jeeps, tractors, portable pumps, winches, Butler bins, etc.-- were supplied to the Ministry of Cooperatives. Technical assistance in land colonization and development has since been phased out, however, and the project now concentrates on demonstrations in credit and marketing as well as farm management improvement.

AGRICULTURAL CREDIT AND MARKETING - Cont'd

More than \$12 million in counterpart funds have been provided for the initial capital involving some 21 cooperatives providing credit, marketing and irrigation services to 20,000 farm families.

A three man Consultant Team made a 5 month study of Agricultural Credit, Marketing, and Cooperative Management and published their findings and recommendations in a report dated November 1959.

A legislative consultant provided assistance in 1960 in preparing and drafting a legislative proposal authorizing the establishment of a National Agricultural Credit System. This matter has been under Cabinet consideration since July 1961. In 1962 an Executive Committee on the agricultural credit program was established by the Prime Minister with his Chief Advisor as Chairman of this 10 man committee.

Current activities include, a farm management study, pilot field demonstrations of large size cooperatives providing credit and marketing services, and assistance in establishing a cooperative training center.

LIVESTOCK INDUSTRY DEVELOPMENT (493-W-13-AC)

In 1952 Thailand still had in force an embargo on export of cattle and buffalo because herds had been so badly depleted during World War Two. Livestock diseases were widely prevalent, causing severe losses to farmers and impeding the development of the industry, while Thailand had little means for dealing with them. Furthermore, vast areas of the Northeast were (and still are) devoted to sub-marginal rice production which might have supported a profitable livestock industry. Growth of such an industry was hampered not only by disease but also by lack of feed supplies for carrying animals through the dry season, by the lack of proved feed and forage crops, and by the poor state of cattle and hog breeds in the area. This project was begun, and addressed to the problem of assisting the Thai Government in building up a stable, prosperous livestock industry. This involved introducing improved breeds, disease control, feeding, management, marketing, and processing.

Under the project, 292 head of purebred cattle were imported for breeding purposes, as well as 266 purebred swine and a large number of chickens.

Eighteen vehicles, seven tractors, large quantities of laboratory and veterinary supplies and equipment, fertilizer, seeds, and numerous buildings were provided for the field stations and central headquarters.

A forage nutritional station was established at Muek Lek and later moved to Pakchong. A diagnostic laboratory in Bangkok was built and equipped. The national serum and vaccine laboratory at Pakchong was expanded and improved with equipment and other facilities. All breeding stations have been assisted and improved. Twenty-five specialists have been trained in the U.S. and numerous others trained in Thailand and in other countries.

Project Descriptions
AGRICULTURE & NATURAL
RESOURCES

LIVESTOCK INDUSTRY DEVELOPMENT - Cont'd

The project has met its goals as far as disease control is concerned, with the Department of Livestock Development now manufacturing virtually all of Thailand's requirements for vaccine and serums for the principal livestock diseases and with an educational, prevention, and treatment service in operation in almost all livestock areas. Nine regional diagnostic clinics have been established. Improved forage and feed crops are being grown on livestock stations in all regions, and bin storage and trench-silo storage of feed supplies through the dry season have been demonstrated as practicable. Programs have been made in improvement with hogs and poultry at all levels from stations to farmers. Experiments are underway to improve management and breeds of cattle on stations. Breeding boars (1,150) and breeding bulls (84) have been distributed to villages. Further introduction of proven practices to farmers is now primarily a job for extension.

USOM gave administrative and technical assistance to build Thailand's first modern meat processing and cold storage plant which was partially financed through a \$750,000 Development Loan Fund loan. All slaughtering for the Bangkok area can be done at this center. Processing is being initiated. Cold storage and freezing space is available for export items as a market for frozen meats and by-products develops.

Since 1957 three Artificial Insemination Centers for cattle have been established and since August, 1961, swine artificial insemination has grown rapidly with four active centers and five more being established this year.

An indication of the success of the livestock development project is the rise in exports of livestock and products. USOM advocated the removal of the embargo of livestock exports in 1952, which was done. Since that time, the value of exports of livestock, livestock products and poultry has increased year by year to almost \$23 million in 1960.

IMPROVEMENT OF KASETSART UNIVERSITY (493-A-11-AE)

In 1952 USOM undertook to assist in strengthening and enlarging Kasetsart University, Thailand's agricultural university. During the years of this project, Kasetsart has grown steadily and the quality of its courses and offerings has greatly improved. Enrollment has increased from 317 students to almost 2,000. The faculty has grown from 80 to 285.

Most of the past U.S. assistance was furnished through a contract with Oregon State College. Several professors, provided directly to Kasetsart, not only taught courses but assisted in the development of curricula, improvement of teaching methods, establishment of research and extension projects, and preparation of publications for teaching and for extension projects.

Under the project large quantities of laboratory and plant equipment and teaching aids have been imported, and 14 buildings have been constructed with counterpart funds. Sixty members of the University staff have received, or are receiving, graduate training in the U.S. The contract with Oregon State College terminated on September 30, 1960 and a new contract team from the University of Hawaii arrived in July 1962 to continue the project. The new team, offering counsel on curricula, teaching methods, and administration, will emphasize the selection, design, and execution of research projects.

Project Descriptions
AGRICULTURE & NATURAL
RESOURCES

AGRICULTURAL EXTENSION (493-A-11-AB)

This project was begun in 1951 to help the Ministry establish a successful national agricultural extension service. Six departments of the Ministry operated field programs of an extension nature, independently and with considerable duplication and overlapping. Comparatively few of the field personnel of these various agencies had sufficient training to give useful assistance to farmers or to furnish leadership in rural activities.

The project undertook to train personnel in extension work and to carry out demonstrations and other extension activities in an effort to show the way.

Nine regional extension centers have been established under the supervision of the Department of Agriculture, with buildings, equipment, and in-service training facilities furnished by this project. These are at Korat, Lopburi, Chachoengsao, Udorn, Chiangmai, Pitsanuloke, Songkhla, Nakorn Pathom, and Ubon.

A national extension service council and national extension service office have been created, a proposed extension plan for Thailand has been developed, and a large number of key personnel have been trained. In the Department of Agriculture an extension information section is in operation, supplying audiovisual and published materials for use by agriculturists in the field. Kasetsart University has established a college-level extension training department.

Despite encouraging progress in the provinces and with extension staffs of the several departments, the development of a unified organization - especially at the national level - has been disappointingly slow. This is because it requires major realignments of traditional functions. The extension concept is proving itself to farmers through the work of the nine regional extension centers, and the various extension divisions. It is believed that a national organization will be established soon.

Another major problem is the lack of amphur officers to work with farm families. It has been agreed that at least one amphur extension officer is needed for each 1,000 farm families. This would require about 3,000 additional amphur officers. Plans are being made to employ and train more amphur officers.

A start was made with the home economics phase of the extension program, an advisor being assigned for a two year period - 1958-1960. This activity, however, was terminated by the Ministry in 1960 except for limited work being continued under the rural youth program.

A branch office of the USOM agriculture division was set up in 1958 in Korat with several extension advisors on its staff. They were to assist in carrying out an intensive and large-scale demonstration of extension service in the Northeast, in developing methods and practices which would increase productivity and conserve resources, in training provincial and district agricultural workers in extension work and to pave the way for adoption of a national program. These advisors were transferred back to Bangkok early in 1961. In early 1959, a team of three highly qualified agriculturalists were brought from the U.S. to make a study and specific recommendations for the development of a sound extension and home demonstration program.

Project Descriptions
AGRICULTURE & NATURAL
RESOURCES

AGRICULTURAL EXTENSION - Cont'd

Improved varieties of rice seed have been distributed each year to some 26,000 farmers. More than 1,200 farm fish ponds have been stocked and the farmers instructed on their care and management.

Over 250 extension-training workshops and conferences have been conducted, several hundred farmer-education meetings held, and about 24,000 field crop demonstrations carried out. Training in the U.S. or other countries has been provided for over 100 Thai specialists and officials in extension work, and 17 farm youths were sent to U.S. for one year on "young farmer" training programs.

In 1959, the organization of farmers into Farmers Clubs was begun. As of October 1, 1962 there were about 200 clubs organized with over eight thousand members. Leaders of these clubs were given training in week-long training meetings in 1962.

Rural Youth Work (formerly project 493-X-16-AO) is now combined with this project. Started in 1954, its aim is to assist the Department of Agriculture in developing a national young farmer organization (Yuwa Kasikorn) similar to the American 4-H Club movement.

American rural youth advisors have helped organize clubs throughout the Kingdom. Assistance has been given in developing administrative procedures; preparing books, manuals, project guides and other materials; selecting training and supervising local club leaders and advisors; and demonstrating all types of club activities. A national Yuwa Kasikorn Congress is held each year at Kasetsart University.

By October 1962, over 200 clubs had been organized with approximately 10,000 members. In 1957 this project helped organize and finance the first Far East Rural Youth Conference, which brought to Bangkok 125 delegates and 40 observers from ten countries.

FISHERIES (493-X-18-AP)

Next to rice, fish constitutes the most important part of the Thai national diet and may well be considered Thailand's second most important industry.

This project, began in 1951 and phased out in 1957. It assisted the Department of Fisheries in its efforts to improve and expand fish production and marketing through training, market development, assistance to fishery schools, and a fish technology laboratory.

Largely as a result of introduction of improved fishing gear, Thailand's fish catch increased by 25 percent between 1953 and 1955. The improved nets and gear are being purchased by Thai fisherman at the rate of \$300,000 worth a year. A fish meal industry was started in 1953 and within three years was producing and selling 2,000 tons a year. The first centralized wholesale fish market in Thailand was established in Bangkok in 1953, with technical advice from USOM, as was a 1000-ton frozen fish plant. Tilapia, a fast growing fresh-water fish, was introduced into Thailand under this project and has become important for inland consumption. A fish technology laboratory was established through this project and its personnel were trained for developing new and improved fish processing.

Project Descriptions
AGRICULTURE & NATURAL
RESOURCES

FISHERIES - Cont'd

Twelve Thai specialists were given advanced training in the U.S. and other countries, and large amounts of equipment and supplies were provided to the fishery stations, including diesel engines, generators, pumps, marine diesels, trucks, launches, refrigerators, fishing gear, and nets.

AGRICULTURE RESOURCES USE AND CONSERVATION (493-X-12-AA, AG, DI, AH, AI)

The philosophy of conservation is hardly known in Thailand except among a small body of dedicated men, mainly because of the seeming abundance of soil and forests and the dependability of food supplies. As virtually all the good land has been put to intensive rice culture, as the forests have receded, and as the need for land has driven men to clear marginal areas and put plots to unsuitable uses, resource wastage has become a major problem not generally recognized. Destructive slash-and-burn farming, once tolerable, can no longer be afforded as population increases and production must be stepped up.

Related to this are the problems of the "arid" Northeast. Actually 35 to 45 inches of rain fall on most of this area; it is arid only to the extent that there is not enough water for dependable wet-rice growing. With moisture conservation, soil improvement, and better adapted crops, the region might become prosperous despite its poor soils.

The need for crop diversification, generally recognized by agriculturists, calls for information on land-use capabilities, soil characteristics, and plant food needs. Such information is fragmentary and facilities for gathering it hardly existed a few years ago.

These were some of the considerations which prompted projects, beginning in 1952, to deal with soil fertility studies, soil testing facilities, and related subjects. As these activities gained experience and proved their value, attention was turned to conservation of soil and water resources and improved uses. The present work is carried on under the Agronomic Development Project. It carries on the soils work, but emphasizes soil survey, land-use capabilities, and conservation.

From August, 1958 to March, 1961, the USOM technicians on this project were centered at Korat from which their activities extended throughout the Northeast and other sections, aimed at the establishment of numerous demonstrations, with the cooperation of local agricultural officers. These showed conservation measures to hold water and prevent erosion, results of using fertilizer, composting, rotations, cover crops, green manuring, etc. Training workshops were held for local agricultural officers, and farmer meetings emphasized the value of the demonstrated measures and practices.

The earlier projects in soil fertility and testing services (493-X-11-AG - 493-A-11-AB and 493-X-12-AH) assisted the Rice Department in studying and promoting the use of fertilizer and green manures on paddy land and helped the Department of Agriculture establish a national soil testing laboratory at Bangkok to study and introduce to farmers improved soil fertility practices. USOM provided technical assistance and laboratory equipment, and nine Thai technicians were trained in the U. S. As one result, soil testing service is now free to any farmer in Thailand (for composition and fertilizer requirements) and a great deal of information has been gathered on the soils of Thailand as the basis for future agricultural planning.

AGRICULTURE RESOURCES USE AND CONSERVATION - Cont'd

Assistance in the reclamation of forests in North Thailand and the establishment of forest regeneration centers throughout the Kingdom (project 493-X-17-DI) began in 1952, and was phased out in 1954 by agreement that assistance in the forestry field would be the responsibility of FAO. A number of vehicles, tractors and other equipment were furnished and buildings were constructed at forest stations.

AGRICULTURAL STATISTICS (493-X-14-AB)

Agricultural statistics, especially economic information, has been almost lacking for purposes of agricultural planning and development.

This project provided, between 1955 and 1958, technical assistance and training to the Agriculture Economics Division of the Ministry of Agriculture for improving essential economic services and information. As a result, a number of special surveys were made and reported, and today the various statistical reports are more frequent, more comprehensive, more reliable, and more current than they have been before. This has greatly increased their value for purposes of marketing, planning, measuring progress, and developing Thai agriculture.

AGRICULTURE LEADER TRAINING (493-W-19-AE)

In cooperation with the Ministry of Agriculture and the Ministry of Cooperative 35 carefully selected farmers from different parts of the Kingdom have participated in observation study programs of farmers organizations and institutions in the U.S. Each Ministry provided one staff member to act as group leader. These farmer leaders, upon return to Thailand, become focal points for joint USOM/Thai demonstration and training activities.

One of these leaders, with officials of the Ministry of Cooperatives have begun preliminary negotiations for a cooperative-to-cooperate trade program with Japanese corn processing cooperatives.

In addition to the farmer leaders, in FY 60, three top level Ministry of Agriculture officers were sent to the U. S. under this project -- their tour coincided with that of the Minister of Agriculture. Thus Thailand's farmer leaders and top agricultural administrators are being afforded an opportunity to make a comparative study of the two countries' approach to food production problems.

(REGIONAL) RINDERPEST ERADICATION (493-X-13-AK)

This project was begun in 1956 to assist Thailand, as part of a regional campaign, to eradicate rinderpest, a serious and destructive livestock disease. Vaccination teams, searching teams, and disease reporters have been trained in the seven provinces where the disease was prevalent. Through USOM and FAO assistance, sufficient rinderpest vaccine is now being produced in Thailand to meet all needs. Besides technical assistance, USOM provided jeeps, refrigerators, and other supplies and equipment.

Project Descriptions
AGRICULTURE & NATURAL
RESOURCES

(REGIONAL) RINDERPEST ERADICATION - Cont'd

The disease was gradually confined, and since December, 1958 not a single case of rinderpest has been found in Thailand. The project was completed that year, but the Thai Government has kept searching teams on the alert and has established a 50 Km. belt along the Cambodian border for universal vaccination of animals to prevent reinfection from across the border.

Project Descriptions
INDUSTRY, POWER & MINING

TABLE OF PROJECT OBLIGATIONS

Dollars - U. S. Dollar contribution
C/P - Local currency costs from Counterpart Funds
T/G Budget - Estimated Thai Government contributions from regular budget in baht and kind
(All shown in terms of thousands of dollars)

Cumulative Through FY 1962

2. INDUSTRY, POWER & MINING	Life of Project	Dollars	C/P	T/G Budget	TOTALS
Industrial Finance Corp. 493-24-211	1960	-	750	-	750
Industry Training Projects 493-X-22 (AV, 23-AY, AW)	1951-55	116	47	25	188
Mae Moh Thermal Power Facility 493-W-22-BJ	1957-61	3,353	1,982	-	5,335
Bangkok Interim Power 493-W-22-BK	1957-59	1,911	140	764	2,815
Power Services and Training 493-E-22-AA(X-22-AU, AX)	1950-64	3,151	761	344	4,256
Mining Development 493-W-21-AF(X-21-DJ, AR, AS, AT)	1951-64	2,162	1,532	373	4,067
Airborne Minerals Survey 493-W-21-BH	1957-59	168	38	-	206
Groundwater Exploration 493-W-25-AG	1955-62	2,902	1,833	950	5,685
TOTAL		13,763	7,083	2,456	23,302
(Regional) Telecommunications Engineering 493-W-22-BI	1956-58	1,388	196	94	1,678
(Regional) Telecommunications Construction 493-W-22-BC	1959-63	16,710	4,000	-	20,710

INDUSTRIAL FINANCE CORPORATION (493-24-211)

This project assisted in the establishment of the Industrial Finance Corporation of Thailand, an organization through which medium and long-term credit on reasonable terms could be provided to private productive enterprises as a means of stimulating industrial growth in Thailand.

USOM's contribution to the initial operating capital of the IFC/T was in the form of a \$750,000 long-term, non-interest bearing loan. In addition the services of a Chief Advisor were furnished for 2 years, a Financial Advisor for 2 1/2 years and those of a Thai industrial engineering firm for 13 months.

INDUSTRY TRAINING PROJECTS:

Telecommunications (493-X-22-AV) - Trained 16 Thai technicians in the U. S. in various fields of telecommunications, to assist the Thai Government in the expansion of telephone, telegraph, radio, and other telecommunications. Begun in 1951, the activities under this project were transferred in 1956 to the Regional Telecommunications Project (51-22-002).

Vegetable Oil Refining (493-X-23-AY) sent two Thai chemists from the Ministry of Industry department of science to the U. S., United Kingdom, and West Germany to study modern methods of refining vegetable oils such as coconut, soya, sesame, cottonseed, and peanuts, in 1954-55.

Diesel Engine Training (493-X-22-AW) -- financed training of one participant in the operation of diesel electric power units in U. S., United Kingdom, and West Germany, in 1955.

MAE MOH THERMAL POWER FACILITY (493-W-22-BJ)

Construction of a lignite-fired thermal power station at Mae Moh in northern Thailand was authorized in 1957. Located at the site of large lignite deposits (which USOM helped develop) this power plant, including two 6,250 KW turbo-generators went into full operation in November, 1960. It utilizes lignite dust and other less marketable forms of lignite thus holding generation costs at a minimum and making lower power rates available in Lampang and Chiangmai for the promotion of industry. A major feature of this project is the supply of power requirements at the Bhumiphol Dam during construction.

A 69 KV transmission line was built to connect the power plant with distribution centers at Lampang, Yanhee and Chiangmai, which project furnished valuable training to Thai engineers and workers in the design and construction of transmission lines.

Contract for plant equipment and erection at Mae Moh was awarded to Elin A. G. of Austria. The Royal Irrigation Department was responsible for the civil works while Rogers Engineering Company coordinated and supervised over-all design and construction of the plant and transmission system.

BANGKOK INTERIM POWER (493-W-22-BK)

This project begun in 1957 and completed in October 1959 provided the City of Bangkok with a complete 10,000 KW diesel-electric power plant located in Lumpini Park. This plant together with 10 additional 1,000 KW units provided and installed by the Thai Government in various plants during the same period furnished 20,000 KW additional of power to relieve the emergency shortage and care for load increases in the interval before a 75 MW steam power plant, planned for construction at North Bangkok, could be completed.

Distribution improvements were made to tie these new interim (20 MW) power sources into the existing system and to put into operation previously purchased switchgear and other distribution equipment. After the Yan Hee power becomes available in 1964 the diesel units installed in Bangkok will be relocated in rural areas where they will serve to build up load so that economic transmission taps can be built in the future.

POWER SERVICES AND TRAINING (493-E-22-AA; X-22-AU, AY)

This activity supplements various power projects, jointly sponsored by the Thai Government and IBRD, Ex-Im Bank, DLF or A.I.D. These have included the Mae Moh Thermal Power Plant and Transmission System, the Bangkok Interim Diesel Power Plant with improved distribution facilities, the Yan Hee Multi-purpose Hydropower Project, the North Bangkok Thermal Plant, and the Bangkok Distribution System.

This three-fold project, which began in 1961, is a continuing one involving contract services, U. S. direct hire technicians and participant training. The services of an American firm, the Rogers Engineering Company, were engaged for about four years, terminating in October, 1961. Plans were made and financing partially provided in FY 61 for a continuation of such engineering services but contract negotiations have been delayed for various reasons. A further period of such services is needed to further progress plans and develop the ability to execute and carry them forward so that their eventual completion can be assured. A participant training program has been effective in this respect; 40 participants having completed training and 16 additional now being in process.

Planning and the coordination of A.I.D. activities in the power field including implementation of projects, administration of an engineering services contract and the participant training program, have required the services of two USOM electrical engineers for a four-year period. One is now engaged and such services will be needed for a further period of three years.

During FY 1951-57 this project (493-X-22-AU and AY) supplied substantial amounts of generation, distribution and other equipment for meeting power needs in Bangkok and in various provinces of Thailand. It also provided technical services, and financed training in the U. S. for 33 of the above participants. Diesel generating equipment supplied during this period totaled 7,700 KW of which 5,000 KW was installed in Bangkok and Dhonburi while the balance relieved overloaded conditions in Phuket, Lampang, Ubol, Phrae, Yala, Chachoengsao, Chantaburi, Photaram, Prachuakirikand and Samutsongkram.

MINING DEVELOPMENT (493-W-21-AF; X-21-DJ, AR, AS, AT)

This project is aiding the Royal Thai Department of Mines in discovering, prospecting, evaluating and developing the mineral resources of Thailand. Private enterprise is encouraged with technical aid and advice, but no financial help, to open new mines and to modernize and expand old mines so as to provide increasing amounts and kinds of mineral commodities for export and for domestic use in Thailand.

From 1952 to 1958 USOM assisted the Royal Thai Department of Mines in building, equipping and staffing a modern mineral experiment center (Project 493-X-21-AT) for experimental work in ore beneficiation, metallurgy, etc. Six participants were sent to the United States for training in metallurgy. The project also assisted with construction of small home-made blast furnaces, sintering machines and reverberatory furnaces. Laboratories were established for petrographic and analytical examination of minerals, ores and water samples. Experiments and investigations are continuously being made in beneficiation of ores and extraction of metals. Each month more than 100 analyses and assays are made for government agencies and private operators.

The present project (493-W-21-AF) is concerned primarily with (1) helping to open new mines, (2) evaluating the mineral resources of Thailand, and (3) training engineers and geologists to carry on this work after the project terminates. Work has been done on potentially important deposits of iron, tin, tungsten, manganese, antimony, fluorite, gold, barite, lead, zinc, copper, coal, building materials, limestone, shale, and other mineral commodities. Thirty-five geologists, engineers, chemists, etc. have been given advanced training in the United States; about 50 Thais have been instructed in methods of prospecting and mining; and more than 60 Thais have been trained in drilling operations. A modern, efficient chemistry laboratory has been equipped and staffed, and a library with several thousand volumes of technical books and periodicals has been established.

The rich tin deposits of southern Thailand are being studied and evaluated. Basic geologic data are being gathered on the bedrocks of Thailand.

The greatest contributions of the project have been (1) aiding and encouraging mining activities by private Thai enterprise, (2) expanding and diversifying the mining industry to produce mineral commodities for use by domestic industries, (3) preparing reports on individual mineral deposits that are potential producers of mineral commodities, and (4) gathering and analysing basic geologic and engineering data needed to properly evaluate, develop and utilize the mineral resources of Thailand.

AIRBORNE MINERALS SURVEY (493-W-21-BH)

An airborne magnetometer and scintillometer survey was made from 1957 to 1959 of three potentially rich mineral districts in Thailand to pin-point areas most likely to contain significant deposits of minerals. Surface explorations have been made and are being made of some of the most promising areas. The most promising area (Chiengkarn - Loei) that was covered by the airborne survey will be explored in detail during the next three years by another group of U. S. Geological Survey geologists under contract with the United Nations Special Funds and the Royal Thai Department of Mines.

GROUND WATER EXPLORATION (493-W-25-AG)

The Ground Water Exploration project for Northeastern Thailand (Korat Plateau) was jointly financed by the United States and Thai Governments. Studies were planned, not only to evaluate the ground water potential of the area, but also to provide essential information required for the orderly development of ground water supplies for domestic, municipal, stock, industrial and possibly irrigation users. The project provided for the services of an American Contractor to drill exploratory wells. The project further provided for the training of Thai personnel in the methods and techniques of conducting ground water studies, and training of drilling personnel in methods of drilling and developing water wells.

Field studies were started in October, 1954 and drilling started during November, 1955 with four rigs purchased for the Royal Irrigation Department and the Department of Health. The Geological Survey, Royal Department of Mines were assigned the responsibility for field studies and supervision. Under the initial phase of the program 83 wells totalling 20,308 feet were drilled. Of this total, 45 wells were completed as production wells, 36 wells (43%) yielding good quality water, and 9 wells yielded brackish water. Thirty eight wells were abandoned, 28 because of salt, and 10 as dry holes or other cause.

The Contractor (Daniel, Mann, Johnson and Mendenhall, International) party began arriving in May 1958. During the period June 14, 1958 to May 12, 1961 they completed 411 exploration wells totalling 168,320 feet of drilling. Of the total 277 wells (67%) yield good quality water and 44 wells yield brackish water. Ninety wells were abandoned, 69 because of salt and 21 for other cause.

Since completion of the Drilling Contract the Geological Survey has been operating the drilling equipment. During the period June 20, 1961 to June 30, 1962 they drilled 176 wells totalling 39,967 feet of drilling. Of the total 130 wells (73%) yield good quality water, and 12 yield brackish water. Thirty-four wells were abandoned, 22 because of salt and 12 for other causes.

Production wells varied in yield from 2 gpm (gallons per minute) to 480 gpm, an average yield of 31 gpm. Seventy-three wells have an average yield of 123 gpm.

A diamond core drill assigned to the area for stratigraphic studies completed 17 core holes totalling 10,147 feet. At four sites good quality artesian water with a free flow up to 20 gpm was encountered.

The Water Quality laboratory set up by the Geological Survey have made chemical analysis of some 2600 sub-surface and surface water samples.

During the drilling, large deposits of Rock Salt were found to underlie the central portions of the large central basin and the smaller northern basin of the Khorat Plateau region. Massive Rock Salt was encountered in 33 wells at depths of from 290 feet to 1,170 feet. Maximum thickness was not determined, but exceeded 800 feet in 2 wells.

The program is continuing as a Thai Government financed project. Their FY 1963 budget for the Ground Water Exploration and Development project is 19,750,000 baht (\$987,500). USOM is continuing to provide the services of two Technical Advisors.

(REGIONAL) TELECOMMUNICATIONS ENGINEERING (493-W-22-BI)

In view of the jumble of telecommunications networks throughout Thailand and neighboring countries -- paralleling, duplicating, uncoordinated, and wasteful in addition to being inadequate for today's needs and incapable of meeting constantly expanding demands -- this project was initiated in 1956 under the Asian Economic Development Fund (U. S. Mutual Security Program funds for Asian regional projects). The plan was to develop a modern telecommunications system in Thailand and between Thailand and the neighboring countries of Laos and Vietnam.

A contract was made with a U. S. firm, Hycon-Page, to make a study to produce a preliminary estimate for future planning, a fundamental plan for a modern telecommunications system, and technical specifications for bids for construction. The contractor was also required to conduct a training program. The contractor produced a preliminary estimate, which was accepted by A.I.D. and the Thai Government. Its fundamental plan was, however, rejected and the contract was terminated in June 1958. Work performed will be useful as a basis for future engineering and construction.

The project is going ahead under project 51-22-029, Regional Telecommunications Construction.

(REGIONAL) TELECOMMUNICATIONS CONSTRUCTION (493-W-22-BC)

The purpose of this project is the development of a telecommunications system in Thailand as part of a regional program which also includes Vietnam and Laos. This has involved two phases; (1) evaluation of economic feasibility, preliminary engineering studies and preparation of a fundamental plan and; (2) design and construction of the system.

The preliminary engineering studies were undertaken by Hycon-Page Telecommunications Engineers who completed this phase with the presentation of a Fundamental Plan in February, 1958, (see Regional Telecommunications (Engineering) 51-22-002). Tudor Engineering Company was retained by A.I.D./Washington to evaluate this plan and make recommendations for the second phase of the work. These are incorporated in the Tudor Engineering Report, dated April 8, 1958 which recommended for Thailand a single system, including rehabilitation of existing telephone plant, providing telecommunications for private, commercial, civil government, police and military use.

Following the Tudor Engineering recommendations, A.I.D. selected Television Associates of Indiana to engineer this system and supervise construction. This firm commenced work under a letter of intent in November 1958 and has been under contract since December, 1959. The company ran into contractual difficulties and in November 1960, a meeting was held in Bangkok by personnel from A.I.D. together with USOM and Television Associates executive personnel. After resolving financial difficulties with respect to overhead and other factors which Television Associates had encountered, a start was made in December 1960 to build up an adequate staff of engineering personnel to fulfill the contract for engineering of the Toll Telecommunications Network as well as engineering of local plant facilities in Bangkok and 22 provincial towns.

By September 1961, Television Associates had completed specifications for the implementation of a Toll Network reaching to the outlying regions surrounding Bangkok and with the

(REGIONAL) TELECOMMUNICATIONS CONSTRUCTION - Cont'd

ultimate aim of extending the Network to all of Thailand. A unilateral move on the part of A.I. D. in September, 1961 held up the release of these specifications to prospective bidders. In October, 1961, two systems engineers of the Western Electric Company were sent to Thailand as part of the A.I.D. unilateral move. These engineers made a two-week survey of the proposed Toll Network. Subsequently, A.I.D. signed a contract with the Western Electric Company on December 13, 1961, to re-engineer the entire Toll Network of Thailand. A staff of six systems engineers of Western Electric started their work on December 17, 1961 and completed the re-engineering of the Toll system in mid-February, 1962.

Based on the technical requirements, general instructions and contractual requirements submitted by the Western Electric staff, a Bidders Conference was held on May 16 and 17, in Bangkok. The purpose of the Bidders Conference was to clear up questions by the interested concerns of a technical and contractual nature. Following the Bidders Conference, five firms submitted proposals by the required June 27, 1962 deadline. Two of these proposal were acceptable. These two proposals have been reviewed and evaluated by a Procurement Committee consisting of members from TPAO, Thai Government, TTEC, USOM and OICC. The Collins Radio of Dallas, Texas emerged as the successful bidder, and a contract for re-implementation of the Toll Network was, signed on October 19, 1962.

TABLE OF PROJECT OBLIGATIONS

Dollars - U. S. Dollar contribution
C/P - Local currency costs from Counterpart Funds
T/G Budget - Estimated Thai Government contributions from regular budget in baht and kmd
(All shown in terms of thousands of dollars)

3. TRANSPORTATION	Life of Project	Cumulative Through FY 1962			TOTALS
		Dollars	C/P	T/G Budget	
Friendship (Northeast) Highway 493-X-31-BD	1954-58	13,614	6,376	-	19,990
East-West Highway 493-W-31-AJ	1955-60	8,095	8,831	-	16,926
Bangkok-Saraburi Highway 493-W-31-AK	1957-65	1,840	11,239	-	13,079
Korat-Nongkai Highway 493-W-31-AL	1957-63	42	11,365	-	11,407
Bangkok-Bangkapi Roads 493-W-31-AI	1957-61	-	5,943	4,300	10,243
General Highway Improvement 493-W-31-BL(X-31-BB,BC)	1951-59	11,520	13,435	72	25,027
Highway Bridge Replacement 493-W-31-AM	1955-63	-	6,292	-	6,292
Highway Department Operations 493-W-31-AH	1957-62	1,798	840	35	2,673
Highway Materials Survey 493-X-31-BE	1959-60	15	16	-	31
Bangkok-Nakornphathom Highway 493-W-31-AN	1960-65	-	3,697	-	3,697
Chumporn-Nakornsrihamaraj Hwy 493-W-31-BY	1960-62	-	227	-	227
Evaluation of Transport System 493-X-39-BO	1957-60	253	70	-	323
Highway Equipment Pool 493-W-31-AO	1957-62	-	249	-	249
Railways Improvement 493-X-33-BG, BF, DK	1950-57	1,445	372	2,285	4,102
Udon-Nongkai Rail Extension 493-X-33-BH	1955-57	1,287	2,256	-	3,543
Railway Equipment 493-X-33-BI, BJ	1955-58	1,544	-	-	1,544
Aeronautical Ground Service 493-W-37-AP, BM, BL	1955-66	7,817	15,240	221	23,278
Meteorological Services 493-W-37-AQ, BK	1955-63	719	581	238	1,538
Thai Airways 493-X-37-BM	1954-59	1,613	-	683	2,296
Aviation Overhaul Facility 493-W-37-BN	1957-60	137	1	-	138
Mekong Ferry Landing, Rail Spur 493-X-33-CX	1956-58	-	727	155	882
Harbor Development 493-X-34-DL	1951-54	794	118	-	912
TOTALS		52,533	87,875	7,989	148,397
(Regional)Seato Telecommunications 493-W-37-CF	1962-64	292	6	-	298

FRIENDSHIP (NORTHEAST) HIGHWAY (493-X-31-BD)

Construction of a modern highway, based on American methods of design and construction, was begun in October 1954 between Saraburi and Korat.

The major purpose of this highway was to promote the economic development of Northeast Thailand. The only highway between Bangkok and Korat, the gateway to the Northeast and its 8 million people, had been 404 Km. long. About 300 Km. of this was tortuous and rough, with impassable muddy stretches in rainy season, rocky passages through the mountains, and dozens of narrow, flimsy wooden bridges. Under the best of conditions, it meant 8 or 9 hours of dangerous, car-busting travel. Replacement of this part of the road, between Saraburi and Korat, was considered the most-needed link in the improvement of Thailand's highway system.

Design and construction of the highway was carried out under contracts with the American firms of Sverdrup and Parcel Engineering Company (engineering) and Raymond Construction Company (construction). During the building of this road, some 1500 Thai were trained in the various phases of operation of equipment, maintenance, repair, welding, quarry operation, etc. Many Thai Highway Department personnel and some provincial officials were given on-the-job training in modern techniques of bridge and road design and building.

The highway, named by the Thai the "Friendship Highway," was turned over to the Thai Government in a formal dedication in the presence of His Majesty the King of Thailand, on July 10, 1958.

The drive to Korat and the Northeast from Bangkok has been shortened by about 150 Km. (the Friendship Highway is 148.5 Km. long), and driving time to Korat is now about 3-1/2 hours.

Approximately \$3 million worth of construction and other equipment was purchased by Raymond Construction Company under this project. After completion of the Friendship Highway this equipment was moved to the site of the East-West Highway. After that job was finished, all equipment remaining was put in good repair and turned over to the Thai Highways Department.

EAST-WEST HIGHWAY (493-W-31-AJ)

There had never been an all-weather road between the North and Northeast of Thailand, preventing the development of commerce between these two important regions of the country. Lack of roads has also retarded development of the large sparsely-settled area lying between these regions, which is believed to have mineral resources as well as large tracts of timber and farming possibilities.

This project financed contracts between the Thai Government and two American firms for the engineering and construction of a new 130 Km. asphalt-surfaced highway between Pitsanuloke and Lomsak in northern Thailand.

The new highway traverses extremely rugged mountainous terrain for most of its length. The Thai Government requested assistance in the construction of this road from A.I.D. because it posed construction problems beyond the resources of the Highway Department. A.I.D. agreed, in view of its economic and military significance and the opportunity it offered for training Highway Department personnel in road construction through difficult country. Engineering was

EAST-WEST HIGHWAY - Cont'd

performed by Sverdrup and Parcel Engineering Company and construction by the Raymond Construction Corporation, the firms that completed the Friendship Highway between Saraburi and Korat.

Over \$3 million worth of equipment purchased by the contractor and used on the Friendship Highway project was transferred to the East-West Highway. After completion of this road, the equipment was turned over to the Thai Highways Department in good condition.

Surveying of the highway began in 1955 and construction was completed in January 1961. Thai technicians, engineers, machine operators and laborers were trained on the job in modern techniques of highway construction and engineering and in the operation and maintenance of heavy equipment. The highway is 6 meters wide, plus 2 meters of treated shoulders. Twenty reinforced concrete bridges were constructed on this highway.

BANGKOK-SARABURI HIGHWAY (493-W-31-AK)

The most important and heavily-traveled road in Thailand is the Bangkok-Saraburi highway, which connects Bangkok with all of Northern and North-eastern Thailand. Other than the railway, it is the only overland route for transportation of people and commodities between the port of Bangkok and the greater portion of Thailand, as well as to Laos. The existing highway is inadequate to support the demands presently imposed on it. It is almost constantly under repair, and it will, within a short time, be totally incapable of meeting the requirements of the ever-increasing traffic which must use this route.

The project, begun in 1957, covers engineering and reconstruction of the highway, a distance of 107 Km., which will tie in with the Friendship Highway to Korat as well as the highway system which feeds the Northern provinces. Engineering is being performed by Transportation Consultants, Inc. under contract, and the construction will be performed by local contractors, under contract to the Thai Highway Department, renting equipment from the Equipment Pool (project 493-W-31-AO).

The first 30 Km. of the highway, from Bangkok passing by the Don Muang International Airport, will be reconstructed as a 4-lane highway, paved with portland cement concrete. The remainder will have a 7-meter wide asphaltic concrete surface with treated shoulders. Present alignment will be followed closely, particularly the portion from Don Muang Airport to Saraburi. Construction contracts have been awarded for the entire length of the project and are all scheduled for completion in 1965.

Additional benefits from this project will be the employment afforded large numbers of local people, the maximum opportunity for training of Thai highway engineers and technicians in modern road-building by reason of proximity to Bangkok where many of them are located, and the reduction of the heavy annual cost of maintaining the present substandard road.

KORAT-NONGKAI HIGHWAY (493-W-31-AC)

This project covers reconstruction of about 360 Km. of existing highway from Korat to Nongkai. This will connect the Friendship Highway with the Mekong Ferry that serves Vientiane, Laos. With the completion of the U. S.-funded Bangkok-Saraburi highway, this will provide a good all-weather truck route from the port of Bangkok through the heart of the economically depressed Northeast to the town of Nongkai, through which must pass most of the imports into Laos.

Detailed surveys have been run and final design has been completed by the Thai Highway Department. Final design criteria have been determined and engineering plans and specifications are now complete. Actual construction on three sections of the highway has begun and the remaining four sections are scheduled for construction by the end of CY 1962.

The entire project is scheduled for completion in 1965.

BANGKOK-BANGKAPI ROADS (493-W-31-AI)

Perhaps the most congested road in Thailand was the two-lane road through the Bangkapi section, the most rapidly expanding residential section of Bangkok. The road serves as the only highway to south-east Thailand, a rich and rapidly growing area of fruit farming, tapioca, small-scale manufacturing, fishing, and beach resorts along the east coast of the Gulf of Siam.

To remove this bottleneck to commerce and municipal growth, this project finances the widening and resurfacing of 7 Km. of Sukhumvit road and 4.4 Km. of Rama IV road; a new 7 Km. extension of Petburi Boulevard; extension, widening, and resurfacing of five inter-connecting side streets; construction of 3 new bridges; relocation of water, electric and sewage lines as required, and construction of sidewalks and additional sewer lines.

The project also improves access to the Klong Toey harbor area, Bangkok's only port facility, and will open up a large area of undeveloped land near the heart of the city for future expansion.

All equipment is supplied by the local contractors who are doing the work, and design and supervision is under the Bangkok Municipality, the contracting agency. The work is scheduled for completion in March 1963, having started in 1957.

GENERAL HIGHWAY IMPROVEMENT (493-W-31-BL; X-31-BB, BC)

From 1951 through 1954, American assistance to Thai highways consisted of technical assistance and a small amount of construction equipment. It was directed to improvement of a specific list of the most critically needed highways, most of which were incorporated into the system aided under later projects.

Within this limited aid and through the medium of fairly large Thai Government budgets for highway work during those years, the Thai Highway Department carried on the highway improvement entirely within its own resources. When in 1955 U. S. financial aid to Thailand was considerably increased, it became apparent that the portion of this expanded aid to be allocated to improvement of the national highway system could not be effectively utilized until a compre-

GENERAL HIGHWAY IMPROVEMENT - Cont'd

hensive plan for a basic highway system was developed. A primary highway system plan was accordingly prepared by officials of the Thai Ministry of Communications and USOM technicians.

This plan covers a basic system composed of the minimum number and length of primary highways necessary for the economic growth and military defense of Thailand. Since the plan was drawn up, U. S. assistance has been confined to the highways which are components of this primary system, without any commitment to help complete the entire system.

During calendar years 1955 and 1956, a total of \$3,647,000 (all in local currency except \$213,000 for equipment and American technicians) was provided to the Thai Highway Department to supplement its budget for construction or rehabilitation of various highways. Accomplishments were worthwhile, but progress was not entirely satisfactory and it was impossible to give comprehensive supervision to the American-financed portion of the total highway program. Beginning in FY 1957 it was decided to limit aid to specific projects under separate project agreements. Project 493-W-31-BL was discontinued in 1959 (projects BB and BC had been combined with this project earlier).

One project under General Highway Improvement was the Udorn-Loey Highway. USOM provided \$1,378,750 of local currency in 1957-58 for building a 20-Km. section of this road west from Udorn. Construction is being accomplished entirely through the physical resources of the Thai Highway Department. No further American aid is contemplated, but the Thai consider this road of such economic importance that they are continuing construction to Bualampoo (45 Km. west of Udorn) through their own resources and plan to complete it into Loey (145 Km. from Udorn) as soon as their budget will permit.

A heavy-equipment training school (project 493-X-31-BC) was established in 1953 under the Thai Highway Department, staffed by American technicians, USOM-employed Thai instruction-translators, and Highway Department personnel. Ten pieces of heavy equipment were utilized, along with other equipment loaned by various Thai agencies. Approximately 300 Thai's from various departments were given on-the-job training in operation and maintenance of heavy earth-moving equipment. In the course of training, about 15 Km. of roads were built, making possible the extension of the Thai State Railway from Udorn to Nongkai. An earth embankment was provided for the railway marshaling yards at Bangsue, and some jungle land was cleared for future farms for the public welfare department at Saraburi. The training school was completed with the establishment of the Raymond Construction Company training program on the Friendship Highway in December 1955.

HIGHWAY BRIDGE REPLACEMENT PROGRAM (493-W-31-AM)

This project finances replacement of dangerous, rickety timber bridges (most of them one-lane) with reinforced concrete structures on many sections of the primary highway system, where existing alignment will be followed in future road improvement. These old bridges are serious hazards to highway safety; they add considerably to highway travel time over long distances, and their occasional failure blocks off entire sections of the highway system.

HIGHWAY BRIDGE REPLACEMENT PROGRAM - Cont'd

The project was financed from CY 1955 through CY 1958 under project 493-W-31-BL (General Highway Improvement).

The total program calls for replacement of 1,013 selected bridges on 8 principal highways, to be completed in 1963. Box or pipe culverts are utilized wherever possible. The average bridge is 22 meters long and 8 meters wide, curb to curb.

Design and engineering is performed by the Thai Highway Department, but all construction is performed by local contractors, bidding on a firm lump-sum price basis. Over 900 timber bridges have already been replaced with concrete structures under this program. Near the end of 1962, 1,013 bridges will be either complete or under construction. More than 4,000 Km. of highways have benefited by bridge replacement.

HIGHWAY DEPARTMENT OPERATIONS (493-W-31-AH)

Technical assistance was furnished to the Thai Highways Department under this project through a contract with the American engineering firm of Charles M. Upham Associates, Inc.

The specific goal was to improve the organization of the various divisions of the department, and to see that each division is able to function so that Thailand may with its own capabilities continue the development of a system of highways suitable to the transportation needs of the country. This was accomplished through advice to division heads concerning their various problems, small demonstration projects where engineers and skilled workers can learn by observing and doing, and a program of training qualified engineers in the U. S.

Mr. Charles M. Upham and six associated engineers came to Thailand in 1957 and made a preliminary study of the Highways Department to determine what type of engineers were most needed and to plan the work in which they would be engaged. Studies showed the need for developing construction contractors who could replace the present method of doing all work by force-account methods. Organization of an equipment pool to furnish necessary heavy equipment to these contractors helped to remove the hazard of dealing with contractor's who were not able to finance expensive equipment (project 493-W-31-AO). A reorganization plan for the equipment repair shop, and a plan for repair shops to be located in the maintenance divisions at their headquarters throughout Thailand, was submitted to the Thai Highways Department for approval. Small projects demonstrating engineering, surveying, planning, material surveys, maintenance, and construction were developed.

The project was completed July 31, 1962.

HIGHWAY MATERIALS SURVEY (493-X-31-BE)

This project, begun in 1959, provided for a complete, systematic survey of soils and materials on three sections of highway in Thailand, including all pertinent field and laboratory testing and the compilation of detailed findings reports.

HIGHWAY MATERIALS SURVEY - Cont'd

Vast areas of Thailand are composed mainly of unstable alluvial soils, with relatively few sources of good embankment and surfacing material. Combining this problem with the difficulty and costs of hauling in Thailand, shows the importance of making full use of all suitable local materials in highway construction. To do this, it is necessary to know what materials are available and their physical qualities and performance.

Surveys have been made on the Korat-Nongkai, Khonkaen-Chaiyapoom, and Bangkok-Nakorn Pathom highways. All survey work was done by regular employees of the Thai Highway Department under supervision of and with technical advice and assistance from Charles M. Upham Associates, Inc. Except for testing apparatus and supplies provided under the dollar funding of this project, existing facilities of the Highway Department are sufficient for this project.

These investigations, along with the development of the Highway Department's Materials Division to carry it on in the future, will greatly affect the planning and costs of all highway construction in Thailand from location and design through construction and maintenance,

BANGKOK-NAKORNPATTHOM HIGHWAY (493-W-31-AN)

This highway is the only overland route, other than the state-owned railway, which connects the population, industrial and market center of Bangkok to the southern peninsula of Thailand and is the route over which most of the products of this area are transported to Bangkok. It is the second most heavily travelled highway in Thailand.

The existing road was constructed by the "hand basket" method and was inadequately designed and constructed to carry the present great volume of traffic. This has resulted in excessive maintenance costs and a very high accident rate.

This project covers the engineering and reconstruction of the 50 kilometers of road from Dhonburi to Nakornpathom. The first ten kilometers passes through a heavily populated area where the traffic density warrants the reconstruction of this section to four lane standards. The remaining forty kilometers will be two lane. Construction is scheduled to begin early in 1963.

CHUMPORN-NAKORNSRITHAMARAJ HIGHWAY (493-W-31-BY)

This project is for the engineering, survey, plans and cost estimates for a highway from Chumporn to Nakornsri thamaraj, a distance of 340 kilometers. The object is to develop the justification and documentation necessary for an application for a loan from external sources to construct the highway.

The area traversed by the proposed highway has great economic potential but it has been severely penalized by lack of adequate transportation. The Government of Thailand considers the construction of this road important in that it is willing to undertake loan financing in order to speed up its construction.

CHUMPORN-NAKORNSRITHAMARAJ HIGHWAY - Cont'd

In addition to developing the fisheries, agriculture and mining in this area, the construction of the road will strengthen the military defense as well as the political stability in Southern Thailand.

The engineering services were completed in April 1962 by the Joint Venture of Litchfield Whiting Bowne & Associates Knoerle, Grafe, Bender & Associates, Inc., and Aero Service (Bahamas) Ltd.

EVALUATION OF TRANSPORTATION SYSTEM REQUIREMENTS (493-X-39-BO)

As a guide to the coordinated development of transportation within Thailand and in relation to neighboring countries, a team of transportation consultants began in mid-1958 a nine-month study under a contract with USOM, in cooperation with the Ministry of Communications. The contractor, the American firm of Transportation Consultants, Inc., submitted in June 1959 a comprehensive plan for the development of a transportation system essential to the economic, political and military requirements of Thailand.

HIGHWAY EQUIPMENT POOL (493-W-31-AO)

Thai Government departments have in the past maintained a virtual monopoly over highway construction, and as a result few Thai construction firms have been able to invest in expensive heavy equipment, with no assurance of continuing opportunities to keep it in profitable use.

This project was designed to help remedy this situation, to foster interest in and provide an impetus for local private enterprise to enter into highway construction. It begun in 1957, as a part of project 493-W-31-BL, to provide for establishment of a pool of major items of heavy construction equipment for lease or rental to private contracting firms in Thailand for building highways.

Most of the pool requirements were procured from U. S. Military surplus -- at prices averaging no more than 60% of prevailing costs in the local market. Supervision and management of the pool was jointly performed by the Thai Highway Department and Charles M. Upham Associates, Inc. (a USOM contractor, project 493-W-31-AH) until August, 1962. Since that time control has been under the management of the Thai Highway Department.

Safeguards to insure the proper utilization and maintenance of the equipment have been written into the rental agreements with the local contractors. In storage, maintenance, major repairs and overhauls are performed by the Highway Department.

RAILWAYS IMPROVEMENT (493-X-33-BG)

Between 1951 and 1957 this project assisted the Thai Government in the planning and construction of three railway shops (Korat, Uttaradit, and Thungsong) and in other improvements in facilities and operations. The railways have long been one of the major factors

RAILWAYS IMPROVEMENT - Cont'd

in the Thai economy. The system suffered from bomb damage and severe usage during the war and was badly in need of repair and maintenance facilities and operational improvements. Especially needed were regional facilities at which rolling stock could be conditioned without dead-lining equipment back to Bangkok for long periods.

Two diesel-electric generators were provided and installed in the Bangkok and Makkasan railway shops, total capacity 1,000 KW. About one million dollars' worth of materials and rolling stock parts (wheels, steel plates and shapes, castings, air-brake parts, couplings, etc.) were furnished. Various items of equipment and machinery were provided to rebuild the damaged railway shops at Korat, such as boilers, feed water heaters, boring mills, shapers, etc. Various other equipment, machines, and testing apparatus were provided at other locations.

Thirty-seven Thai senior and junior railway employees were sent to the U. S. to study maintenance, operation, administration, bridge design, traffic control, accounting, and other aspects of railroading.

UDORN-NONGKAI RAIL EXTENSION (493-X-33-BH)

Most of the imports for Laos move through the port of Bangkok, and up the Thai State Railway toward Vientiane. As this traffic expanded rapidly following the Geneva settlement, USOM agreed in 1955 to assist the State Railway in completing the construction of 60 Km. of meter-gauge single-track line, including sidings and yards, from Udorn to Nongkai, on the Mekong River. Materials and equipment were financed by the U. S. and construction was performed mainly by State Railway forces. Among commodities furnished were 3,900 tons of rail, a 5-ton bridge crane, stone crushers, concrete mixers, sheepsfoot rollers, welders, wire, spikes, rail anchors, etc. The Udorn-Nongkai line was completed in late 1957 under project 493-X-33-CX, Mekong River Ferry Landing and Railway Spur.

RAILWAY EQUIPMENT (493-X-33-BI)

To enable Thailand to speed up train operations (mostly over single-track lines), increase capacity and efficiency, and promote railway safety, this project undertook in 1955 to provide a traffic control and communications system in the Northeast region and provide additional badly needed rolling stock. Seventy-eight gondola cars and 16 tank cars were supplied, and a complete traffic control and carrier telephone system was installed from Bangkok to Korat, with branches to Ubol and Nongkai. The system was dedicated in July 1958, with considerable publicity, by the Thai State Railway.

Because Laos must depend upon the Thai State Railway for moving most of its imports (which arrive at the port of Bangkok) and the Thai rail system is over-burdened handling expanding internal trade, USOM offered in 1956 to add box-car capacity to the railway in return for assurance that the State Railway would give service to the Laotian trade. Under project 493-X-33-BJ the U. S. furnished 125 box-cars (12.5-ton) and 40 tank under-carriages, the latter financed by USOM Laos.

AERONAUTICAL GROUND SERVICES IMPROVEMENT (493-W-37-AP)

This project, which began in 1951 under project 493-W-37-BM, is assisting Thailand in developing an efficient, integrated system of ground facilities and services to support both domestic and international air commerce. Facilities and services planned will help carry out the plans of the International Civil Aviation Organization. They will be used for both civil and military purposes and they will be operated without duplication of effort.

Specifically, the project will provide Thailand with:

- (a) A system of improved airports, located by both economic and military considerations.
- (b) Air/ground and point-to-point communications for all airports, basic navigational aids, air-traffic control facilities, power supplies at civil airports, and approach, runway and taxiway lighting.
- (c) Technical advisory services and training of personnel (in courses, on-the-job, and overseas) in all phases of civil aviation, but particularly in the fields of air-traffic control, communications, and electronic equipment maintenance.

In the area of airport development, the project has provided for grading, draining and paving of concrete runways, taxiways, and aprons; construction of access roads; installing airport lighting, electric power and other miscellaneous construction at the following airports: Korat, Takhli, Udorn and Chiangmai.

The construction and installation of facilities at the above mentioned airports was, in September 1955, turned over to the OICC, U. S. Navy, with full authorization to arrange for and supervise engineering, construction and other services. A construction contract was let to Vinnell-Christiani and Nielson, a joint venture, on June 30, 1958. Construction of airport facilities at the five airports was completed by February 1960.

Current airport projects include a new paved runway and related facilities at Phuket airport, scheduled for completion in early 1963. Designed by the Thai CAA, terminal buildings have been completed at Chiangmai, Pitsanuloke and Udorn. The terminal building at Ubol will be completed in November 1962. A terminal building for Phuket airport will be completed about August 1963.

Latest and perhaps most significant are the improvements to Bangkok International Airport (Don Muang). Because of the current use of jet civil transports, an instrument landing system has been procured to supplement the high intensity approach light lanes which have been installed. The ILS system will be operational about September 1963. Also under this project, the Don Muang airport power system, which had long been a source of potential hazard, has been surveyed, generating and distribution systems engineered, equipment procured, installed and put into operation January 1962.

Construction of the Don Muang airport new control tower was completed in April 1961. The tower is the most modern air traffic control facility in the whole of Southeast Asia. Construction specifications and plans were drawn by U. S. Consultants Overseas, Inc., located in Japan. The local contractor was Sangar Phanich Co., Ltd. The electronic equipment installation is scheduled to be completed by April 1963.

AERONAUTICAL GROUND SERVICES IMPROVEMENT - Cont'd

In addition to construction improvements, a large amount of air navigation, electronics and communications equipment has been furnished to airports. Planning and construction work has been done preparatory to receipt and installation of these facilities. Technical assistance has included aid in siting, installing, and commissioning much of this equipment.

Language and technical training has been given to personnel to operate and maintain the various facilities. Organized classes in air-traffic control have graduated qualified tower operators. Engineering assistance has been given to various airport construction and improvement operations in all parts of the Kingdom. Eighty-eight participants have been sent to the U. S. or other countries for specialized training in electronics, air traffic control, communications, airport design, and related fields.

Electronic and power-generating equipment necessary for safe, efficient aeronautical communications and navigational operations has been provided to Don Muang International, Songkhla, Phuket, Chiangmai, Pitsanuloke, Chiengrai, Lampang, Phrae, Udorn, Ubol, Nakornsawan, Mae Sod, Tak and other airfields -- this includes a VORTAC facility, an omnidirectional range, radio beacons, radio teletype, radio transmitters and receivers, and generators.

METEOROLOGICAL SERVICES (493-W-37-AQ)

This project was begun in 1955 with the aim of improving Thailand's national weather service system by supplying limited amounts of equipment, instruments, supplies and training. Modernization and improvement of weather services is of considerable importance to civil and military aviation throughout the region, to agriculture, to naval and other craft in the Gulf of Siam, and to cooperating weather and climatological agencies throughout the world.

In cooperation with the Royal Thai Navy Meteorological Department, the U. S. undertook to assist in modernizing the facilities and scientific equipment throughout Thailand's meteorological network to facilitate collection of accurate surface and upper-atmosphere data. Development of an adequate domestic communications system (in conjunction with project 493-W-37-AP, Aeronautical Ground Services Improvement) and of meteorological services required for safe, efficient operation of domestic and international aviation were also begun. Other goals were to reorganize and improve meteorological services to the general public, agriculture, shippers, government agencies and others -- including storm warning, flood warning, water availability, and related advices.

Twenty-one participants have been trained in the U.S.. Various equipment and supplies have been received or are on order. The modernization program is about 95 percent complete (1962) and the communications system survey about 95 percent complete (equipment previously ordered under project 493-W-31-AP). Weather services are now available at all active airports in Thailand and forecast centers have been established at Songkhla in the south and Chiangmai in the north. An upper-atmosphere station has been established at Ubol. A forecast center will be established at Ubol in 1963. An IBM system for the automatic compilation and verification of weather records is being established.

THAI AIRWAYS (493-X-37-BM)

At the request of the Thai Government, A.I.D.'s predecessor organization undertook in 1955 to finance the services of American experts in airline operations to help improve the operations of Thai Airways, Thailand's national airline, and put it on a paying basis.

In April 1956 a contract was negotiated between Pan American World Airways, Inc. and Thai Airways Company, Ltd. Under this contract, PAA provided the services of 25 specialists in the fields of operations and maintenance, sales and traffic, accounting, fiscal management, purchasing, and stocks and stores. USOM covered the dollar costs of the contract and the Thai Government the local costs. The specific objectives were to determine the causes of unsatisfactory operations, to initiate courses of action to correct the deficiencies, to train Thai Airways and Thai Government personnel, and to provide technical assistance in connection with the establishment of a first-class aviation overhaul and maintenance facility (project 493-W-37-BN), which USOM would help finance.

The contractor undertook to perform all that was expected and for the first months of the contract excellent progress was made. After that time, as a result of a complexity of factors, including a change in government and in the control of Thai Airways, the project began to fall short of its goals. It was not extended beyond the contract expiration date of April 4, 1959.

AVIATION OVERHAUL AND MAINTENANCE FACILITY (493-W-37-BN)

Bangkok International Airport is the largest and busiest airport in Southeast Asia. At the present time, 24 scheduled international airlines and many non-scheduled airlines operate through this airport, which also serves as the headquarters of the Royal Thai Air Force. Present overhaul and maintenance facilities are considered inadequate to service the varieties and quantities of aircraft utilizing the airport.

The present Thai Airways Company Overhaul Base can handle aircraft no larger than the DC-3. The trend to operation of larger and more complicated aircraft through Bangkok is increasing. Bangkok is ideally located to serve as the strategic center for aviation in Southeast Asia. In order to help determine the need for an aviation overhaul and maintenance facility, it was decided in May 1960 to have A.I.D./W negotiate a contract to perform a feasibility and cost survey for this facility. The Wallace Clark Co. completed the survey and submitted their report in August 1961.

MEKONG RIVER FERRY LANDING AND RAILWAY SPUR (493-X-33-CX)

To complete the transportation facilities between the port of Bangkok and Vientiane, the capital of Laos, along which flows most of Laos' imports, this project provided funds for freight handling and forwarding facilities on the Thai side of the Mekong River (see project 493-X-33-BH Udorn-Nongkai Rail Extension).

The Udorn-Nongkai line, which USOM helped build, halted 4 Km. short of the planned river-side terminal when the Thai State Railway was unable to obtain right-of-way through an area set aside for a military air-strip. In late 1956 permission was obtained to build 6 Km. of tract skirting the proposed air-strip. This project financed equipment and supplies for this

MEKONG RIVER FERRY LANDING AND RAILWAY SPUR - Cont'd

single-track extension, plus necessary spurs at Nongkai station and the in-transit ware-housing facility. It also provided for a masonry and reinforced concrete warehouse, a customs building of 1500 square meters, POL deck, and other facilities. The facilities were dedicated in July 1958 with ceremonies on both sides of the river arranged by Thai and Laotian authorities. The Thai State Railway ran a special guests train from Bangkok to Nongkai.

HARBOR DEVELOPMENT (493-X-34-DL)

To help clear the bar of the Chao Phya River and a deep-water channel to the port of Bangkok, this project financed the purchase of the second-hand dredge, Manhattan, from the U. S. Corps of Engineers in 1951, with two fuel barges, a tug boat, and a steel cable sling. Costs of towing the dredge from the U. S. were also included.

During the long voyage from Philadelphia the dredge suffered considerable damage, and repairs were financed by USOM in 1953. The dredge has continued in service, as the "Sandon II," but it is soon to be replaced by a modern one purchased under a DLF loan.

(REGIONAL) SEATO TELECOMMUNICATIONS PROJECT (493-W-37-CF)

This project is based on a study and survey completed in 1959, conducted jointly by the U. S. Federal Aviation Agency and the U. S. Weather Bureau. The results of the survey pointed up serious deficiencies in the telecommunications system responsible for gathering and disseminating meteorological and aeronautical information between three SEATO member nations, Pakistan, Thailand and the Philippines. In FY 1962 the project was approved for the Thailand - Philippines portion of the requirement and SEATO grant funds were appropriated to cover all dollar costs of the project.

In respect to the Thailand component, the project provides for the following specific improvements:

- (a) Replace the existing low power, single channel, conventional HF point-to-point RTTY circuit between Bangkok and Manila with 10 KW SSB transmitters and expanded channel capacity to 4, full duplex, RTTY circuits, one of which would be used as an engineering order wire circuit with the remaining three to carry AFTN and weather information.
- (b) Provide two, dual diversity receiving systems with antennas and associated ancillary equipment to monitor WMO, RTTY weather broadcasts.
- (c) Provide participant training in the U. S. for six Thai technicians for varying periods to total approximately 50 months.
- (d) Establish a program for in-service training for Thai nationals in the operation and maintenance of communications systems.

Two, U. S. technicians are to be assigned to the project. One in the second quarter of FY-63 and one in the 1st quarter of FY-64. They will remain assigned to the project until the scheduled completion date of June 1964.

TABLE OF PROJECT OBLIGATIONS

Dollars - U. S. Dollar contribution
 C/P - Local currency costs from Counterpart Funds
 T/G Budget - Estimated Thai Government contributions from regular budget in baht and kind
 (All shown in terms of thousands of dollars)

1960 and Prior

	Life of Project	Dollars	C/P	T/G Budget	TOTALS
4. HEALTH and SANITATION					
Malaria Eradication 493-P-51-AA	1951-69	6,080	5,318	1,464	12,862
Village Health & Sanitation 493-P-59-AB	1960-65	872	567	209	1,648
Medical Education 493-P-54-AC	1951-66	3,868	3,551	2,426	9,845
Local Health Development 493-W-53-BO	1951-59	1,153	1,713	1,360	4,226
Environmental Sanitation 493-X-52-BT;X-29-CW	1951-55	1,260	596	48	1,904
Health Education 493-X-54-BV	1951-57	208	218	5	431
In-Service and Pre-Service Training 493-X-55-BY	1952-59	335	420	73	828
Intestinal Disease Control 493-X-51-BQ	1952-55	93	912	42	1,047
Cholera Control 493-X-51-BR	1958	110	-	-	110
Hospital Improvement 493-W-55-BP	1951-57	1,804	1,221	373	3,398
TOTALS		15,783	14,516	6,000	36,299

MALARIA ERADICATION (493-P-51-AA)

In 1950, malaria was, as it had been for many years, the chief cause of sickness, debilitation and death in Thailand. During 1945-49, reported malaria deaths averaged over 45,000 annually, and malaria cases were about 100 times this figure. Malaria caused the loss of countless man-hours of work and reduced the physical energies of vast numbers of people. It made some areas of the country virtually uninhabitable, discouraged the people from new settlements and other enterprises, and put a great burden on the health services.

After a demonstration of large-scale house-spraying with residual insecticides by the Thai Ministry of Health in 1950, with the cooperation of WHO and UNICEF, the U. S. began assisting the Ministry in 1951 to extend the scope of the campaign. At first the goal was to control malaria throughout all malarious areas (estimated to include over half the national population.) As the effectiveness of the work became apparent the objective was changed to eradication.

The malaria eradication program includes as its principal activities (1) an annual house-spraying campaign in the dry season to destroy malaria-carrying mosquitoes and stop malaria transmission, and (2) an all-year antimalaria surveillance program to search out and treat suspected malaria cases, determine malaria foci requiring counter measures, and guard against introduction and spread of malaria. This has involved helping the Thai Ministry of Public Health to develop an efficient nation-wide antimalaria organization, training of technical personnel, supplying of necessary materials and equipment, a public information program, and helping to plan and conduct the antimalaria activities.

The Malaria Control Program successfully reduced the malaria death rate from an average of 250 deaths per 100,000 population to 35-deaths per 100,000 population. This is a remarkable achievement for a control program, but it is the point where eradication begins.

The objective of the Malaria Eradication Project is the complete eradication of malaria from Thailand.

The project aims to permanently relieve the Thai people of what has been, since the beginning of their recorded history, their single greatest cause of sickness, debility and death. Through release of previously diverted physical and mental energy, the project contributes directly to conservation of the human resources necessary to improvement of the economy, development of natural resources, and strengthening of the national defense.

Training has been provided for 16 medical officers (in U. S. and third countries), 221 technical assistants and 610 technical aides (in Thai training centers) and up to 2,500 house-spraying personnel annually (in operational areas). Training has also been provided in Thailand for three medical officers and 87 technical assistants of the Laos antimalaria service and 36 officers and technicians from other Asian and Pacific countries.

Training has been provided in Thailand for approximately 20 zone chiefs, 200 sector chiefs, 1,200 squad chiefs, 2,500 spraymen, 2,500 surveillance workers, and 140 microscopists.

Two new laboratories and training centers have been constructed at Chiangmai and Phrabuddhabat. Vehicle, sprayers, insecticides, microscopes, drugs and other technical equipment have been supplied.

MALARIA ERADICATION - Cont'd

Seven American (A.I.D.) technicians and 2 WHO technicians are working together with the Thai staff on this project.

The project has been highly successful thus far in terms of organization, training, anti-malaria activities, and reduction of malaria cases and deaths. American assistance is expected to end in 1969, with the Thai Government continuing the terminal phases of the malaria eradication program unilaterally. The costs of certain other discontinued disease-control projects are (for accounting purposes) included in this project, as follows:

Plague Control (93-51-CR11) in 1953 assisted in establishing three regional laboratories, equipping them with about \$45,000 worth of scientific instruments, books, refrigerators and vehicles, and the training of a Thai specialist in the United States. An American technician assisted in a survey of the plague problem in Thailand.

Venereal Diseases Control (CR13) in 1953 furnished \$130,000 worth of pharmaceuticals, constructed four VD clinics, and supplied them with vehicles and equipment. An American technician was assigned to this project.

Leprosy Survey (CR28) financed a survey of leprosy, three jeeps, and \$30,000 worth of pharmaceuticals.

Foreign Quarantine (CR39) in 1953 assisted the Division of Communicable Diseases to establish more effective control of the entry of epidemic diseases through Bangkok sea and air ports by furnishing of motorboats, \$50,000 worth of other materials and equipment, and miscellaneous facilities.

Nutritional Disease Control (CR138, CR5) in 1952 and 1954 assisted in constructing a Ministry of Public Health nutrition center; providing \$13,000 worth of laboratory equipment, vehicles, vitamin tablets, etc., for establishing a nutrition laboratory; conducting nutrition education and surveys, and increasing production of shark liver oil and soya bean milk.

VILLAGE HEALTH AND SANITATION (493-P-59-AB)

The extension and improvement of public health services among the rural people of Thailand is a matter of the greatest urgency and importance from both the economic and political points of view, as there is growing public demand for better health services. There is no immediate prospect that private medicine will be able to meet this demand. Since the leading causes of illness and death in Thailand now are the water and filth-borne diseases--diarrheas, dysenteries, cholera, typhoid and paratyphoid fevers, and parasitic infections--U. S. assistance to the public health program is concentrating on the improvement of environmental sanitation at the village level utilizing the health education approach as developed in the pilot study under The Local Health Development Project.

In cooperation with the Department of Health, Ministry of Public Health, effective and reproducible demonstrations of village-level privy, water-supply and clean-up programs are developed utilizing the following pattern of operation:

VILLAGE HEALTH AND SANITATION - Cont'd

(a) Community organization--formation of a village health committee.

(b) Intensive health education--health workers acquaint the health committee and through it the villagers, with the nature of the sanitation problems and their solutions.

(c) Organized community action, resulting in: Protection of drinking water supplies; Privy installation and use by each household; Improvement of premise sanitation through a continuing clean-up and refuse disposal program; and, cooperation with other agencies, promotion of social well-being and better standards of living in the villages and inducement of change in attitude of village people to accept to a higher degree the democratic way of life within their existing social and cultural framework.

This program was launched in January 1960 through a series of two-week provincial training workshops for the field sanitarians of Northeast Thailand. In 1961 the project expanded to South Thailand and in 1962 to North Thailand. By the end of 1962, a total of 782 sanitarians and 346 observers, mostly community development workers from 47 provinces, have received training in the manipulative and human relations skills necessary to the successful promotion of village sanitation work. Already programs are underway in about 2,500 villages. In addition, 41 participants from other Asian countries have received observation training in Thailand under project auspices.

Plans call for extension of project activities to eighteen provinces in the Central Plain area in 1963 and further extension to the other Central Plain provinces in 1964. Limited project support, including commodities, technical advisory services and participant training, is being made available throughout the country from the very beginning.

U. S. assistance to the project includes technical advisor services of four sanitarians, commodities such as hand pumps, pipe, audio-visual equipment and other training aids, participant training abroad, and local currency support of training workshops and field activities. For the first year of the project, technical advisory services of a health educator were provided.

Apart from its direct impact on the villager's health, this program, through its emphasis on maximum public participation or "self-help", serves as a spearhead for unlimited development not only of better health services but the entire spectrum of developmental activities in all fields.

MEDICAL EDUCATION (493-P-54-AC)

The Medical Education Project, started in 1951, was re-directed in 1957 toward the specific objective of aiding in the establishment of a new medical and a new nursing school in Chiangmai.

In the past, this project has provided general assistance to the two existing medical schools in Bangkok aimed primarily at strengthening certain key departments and in filling outstanding equipment needs, particularly in the pre-clinical sciences. Technical advisory assistance was provided initially through a contract with the Washington University Medical School of St. Louis. Sections of preventive medicine were established at both Siriraj and

MEDICAL EDUCATION - Cont'd

Chulalongkorn Medical Schools with, in each case, an A.I.D.-sponsored Thai physician as head of the section.

Two Schools of Medical Technology have been built and equipped, and are functioning both as training centers for medical technologists and as central laboratories for the two teaching hospitals in Bangkok. At Chulalongkorn and Children's Hospitals, twenty-four interns and residents in internal medicine and pediatrics received training under the supervision of a USOM medical education advisor during 1960 and 1961.

In 1960, the Faculty of Medicine, Chiangmai Hospital, was inaugurated. The first class of 63 students was enrolled in temporary quarters in Bangkok on May 30, 1960, and moved to Chiangmai in January of 1961. A second first-year class followed in May of 1961, and a third in June of 1962. A school of nursing was also developed at the Chiangmai Hospital, the organization of which was preceded by the training of practical nurses in a one-year course, to give nursing care until an adequate supply of trained nurses is available. The first class of practical nurses began studies in November of 1960. Construction and equipment costs of the Chiangmai project are shared by the Thai and U. S. Governments. Technical advisory assistance are being provided chiefly through a contract with the University of Illinois College of Medicine. The contract was signed on August 2, 1962 and the first three professors arrived within a month.

As of September 1962, 87 staff members have been appointed to the Chiangmai Hospital Faculty of Medicine. Of these, 60 doctors and 16 nurses, have completed or are now taking two or more years of graduate study in the U. S. under A.I.D. participant grants.

It is believed that the new Faculty of Medicine, Chiangmai Hospital, will serve as a model for the future development of additional Hospitals and schools of medicine and nursing in Thailand.

Other projects in the field of health, now discontinued, include:

LOCAL HEALTH DEVELOPMENT (493-W-53-BO)

In 1957 USOM combined into this one project four separate activities which it had been assisting since 1951. These included Rural Health (053), Health Education (054), Environmental Sanitation (022), and In-Service Training (072). This was done in order to integrate all assistance aimed at the improvement of local health services. The major objective was development of a large-scale demonstration and proving ground for improved techniques for meeting the outstanding health needs of rural Thailand.

In cooperation with the Ministry of Public Health, effective and reproducible demonstrations of village-level privy, water-supply and clean-up programs were developed through active community participation in 52 villages in three provinces. Equally important, the practicability of de-centralized administration of health services was demonstrated in ten selected districts, one province, and one region as an effort to show that the over-centralized direction of services from Bangkok is unnecessary and lacks responsiveness to local needs. The project completed the development of the in-service and pre-service training center at Cholburi and of the nationwide health education program under the Thai Division of Health Education. It also sponsored development of the vehicle maintenance and repair facility in Bangkok, the first Department-wide

LOCAL HEALTH DEVELOPMENT - Cont'd

facility of this sort in Thailand.

This project was phased out as planned in 1959. By that time, 52 village-level demonstration projects had been carried out successfully, showing conclusively that villagers will take an active and useful part in safeguarding their health and improvement of health services, and that they are not resistant to social changes of demonstrated benefit. The demonstration of decentralization of public health administration at Korat showed substantial progress and the Korat Provincial Health Department is now recognized as one of the best organized and best staffed in the country. On the regional level, a regional laboratory was established and a field advisory staff for the public health program in the Northeast organized. In addition, a handbook for rural health workers was produced and distributed to Thailand's 5,000 rural health workers to guide them in undertaking village development programs similar to those demonstrated in the Local Health Development Project. By the end of 1959, sanitation and health education projects were underway in 259 villages throughout Thailand. National expansion of this program is now being sponsored by the Village Health and Sanitation Project.

ENVIRONMENTAL SANITATION (493-X-52-BT)

Between 1951 and 1955 assisted the Thai Government in three different attempts to improve environmental sanitation conditions and develop potable water supplies in the Northeast. A shallow-well drilling program involving ten rigs put down 376 wells, of which only 49 produced potable water, the rest being mostly salty. This proved the need for more geological information so the drilling program was transferred in 1955 to the new Ground Water Exploration Project (493-W-25-AG).

Water filtration systems (493-X-29-CW) were designed to alleviate water shortages in Mahasarakam, Sakorn Nakorn, Roi-Et, Surin, Srisaket, and Ubol, providing 254,000 gallons of potable water per day. Each town was furnished intake water lines, complete rapid sand filtration plant, distribution lines, meters, and power supply units, and financial assistance was given in installation.

Finally, an extensive environmental sanitation program was planned to benefit directly 500,000 people in the Northeast through self-help well-digging, reservoir building, and pit-privy projects. This element of the project was incorporated into the Local Health Development Project in 1957.

RURAL HEALTH (project 493-W-53-BO)

Assisted the Ministry of Public Health with organization, administration, and operation of the division of rural health, regional and provincial health departments, the development of district health units, the improvement of rural health centers, and development of a repair and maintenance garage for public health vehicles. The project, begun in 1953, was merged with Local Health Development in 1957. Twenty-five doctors and nurses received special training in public health in the U.S. Essential equipment, vehicles, and commodities were furnished to 750 rural health centers. A modern provincial and regional health office was constructed at Korat, and a successful demonstration district health unit was started at Tamuang, with improved medical, public health and other community services.

HEALTH EDUCATION (project 493-X-54-BU, BV)

Began in 1951 and was merged into Local Health Development in 1957. The Thai Government has been carrying on a health education program for many years, relying mainly on mass information activities. Early assistance under this project consisted chiefly of seven mobile audio-visual units, darkroom and printing equipment, barges to be equipped as mobile educational units, and generators and trucks. In 1954 the project began assisting the Ministry in shifting emphasis from mass information to development of community organization to solve local health problems. Assistance included community demonstration projects and development and use of effective audiovisual materials for health education. Twelve Thai specialists were trained in the U. S.

IN-SERVICE AND PRE-SERVICE TRAINING (project 493-X-54-BW)

Established a training and demonstration provincial health center in Choburi. Classrooms, office space, dormitories, kitchen, and housing for staff were completed in 1957, financed with counterpart funds. All basic equipment was provided through U. S. assistance. An average of 200-300 Thai public health personnel have been trained each year since training began in 1952--sanitarians, midwives, health officers, nurse supervisors, nurse students, students of public health, junior health workers, student nurses, and public health physicians.

Nine American advisors were assigned to the Choburi Training Center, assisting in the development of training curricula and the teaching program. Emphasis has been on short-course in-service training for groups of 10-20 at a time by professional categories. Pre-service training in the field has been provided to new employees of the Department of Health and students from the School of Public Health. In 1957 a new one-year course of study designed to prepare additional sanitarians to staff the increasing number of rural health centers was added to the curriculum, and through 1959, 165 completed the course. Nine Thai public health workers have been given special training in the U. S. under this project.

INTESTINAL DISEASE CONTROL (project 493-X-51-BQ)

Begun in 1952 and ended in 1955, assisted the Division of Communicable Diseases to develop an effective program of control through demonstration, survey and training. Intestinal parasites undermine the health of 60 percent of all persons in Thailand, and in some areas they affect over 90 percent of the people. A limited reconnaissance was completed to determine the extent and nature of the problem as a basis for control measures. Treatment was given to those persons found to be suffering seriously from intestinal parasites. Training was given to four specialists in the United States, to students at medical and public health schools, to intestinal parasite control teams, to laboratory staff, and to public health personnel attending the Choburi Public Health Training Center. Exhibits for fairs were prepared and pamphlets were distributed to the public. The United States provided the services of two experts, about \$100,000 worth of pharmaceuticals, scientific equipment and 5 vehicles.

The campaign against intestinal and other diseases which are the result of unsanitary conditions and unhygienic practices is now carried on under the Village Health and Sanitation Project (493-P-59-AB).

SPECIAL CHOLERA CONTROL PROJECT (493-X-51-BR)

A cholera epidemic broke out in Bangkok in May 1958 and the United States was asked for help. Under this emergency project several shipments totaling 3,500,000 cc. of cholera vaccine were obtained from the U. S. and other sources and flown to Thailand. The project also financed transportation of laboratory equipment purchased from funds donated by H. M. the King, intravenous-fluid-producing equipment donated by the American Red Cross, vaccine donated by the Canadian Red Cross, and supplies purchased abroad by the Thai Ministry of Public Health. Most of the vaccine and supplies were flown to Thailand by the U. S. Air Force. The U. S. Navy made available the services of its Naval Auxiliary Medical Research Unit in Formosa, and a team of 10 arrived June 12 and set up laboratory, research and epidemiological services at Chulalongkorn Hospital. The project made possible a massive inoculation program by the Ministry of Public Health which limited the incidence of cholera in the first year of the outbreak and it prepared the Ministry to deal with the reoccurrence (as expected) of the disease in the second dry season following. A great deal of assistance was rendered to the cholera campaign through other USOM projects as well.

HOSPITAL IMPROVEMENT (493-W-55-BP)

Millions of Thai in rural areas have lacked access to any kind of medical services, and the great strides made in diagnosis, treatment, drugs, and surgery in this century have not benefited them at all.

This project, begun in 1951 and completed in 1957, assisted the Thai Government in providing buildings, equipment, drugs, instruments, ambulances, and other supplies for improving and modernizing existing hospitals as well as establishing new ones in provinces lacking medical facilities. In 1951 there were only 20 provincial hospitals, today there are 85.

The project also provided special training in the U. S. for 123 Thai doctors and nurses. Among the buildings built under this project were 20 X-ray buildings for provincial hospitals, 11 surgical buildings, and 22 other buildings at various locations in all parts of the country--a nursing school, a school for nurse-aides, nurses' dormitories, physicians' houses, laundries, generator plants, and hospital wards.

TABLE OF PROJECT OBLIGATIONS

Dollars - U. S. Dollar contribution
 C/P - Local currency costs from Counterpart Funds
 T/G Budget - Estimated Thai Government contributions from regular budget in baht and kind
 (All shown in terms of thousands of dollars)

1962 and Prior

6. EDUCATION	Life of Project	Dollars	C/P	T/G Budget	TOTALS
Teacher Training 493-W-66-AB	1952-62	3,523	1,618	6,740	11,881
General Education Development 493-W-64-AB, CB	1952-63	2,742	3,553	7,628	13,923
<u>Improvement of Vocational Education</u> 493-N-61-AB Improvement of Vocational Agriculture 493-X-62-CA		1,731	1,436	155	3,322
Improvement of Technical Institute 493-W-61-BS		1,623	1,290	1,309	4,222
SEATO Skilled Labor Project 493-W-61-BR	1958-63	1,333	796	-	2,129
Engineering Dept. Chulalongkorn University 493-W-66-BT	1952-60	817	402	285	1,504
Education Training Projects 493-X-66-CD, CE, CF, CG, etc.	1952-57	87	136	12	235
TOTALS		11,856	9,231	16,129	37,216
SEATO Graduate School of Engineering (Regional) 493-W-66-BD	1958-63	2,144	-	364	2,508
Improvement of English Language Teaching (Regional) 493-W-69-BE	1958-61	1,739	83	31	1,853

Project Descriptions
EDUCATION

TEACHER TRAINING (493-W-66-AB)

Thailand now has a total of about 147,000 teachers and, according to one reliable estimate, needs 10,000 new teachers each year for the foreseeable future. Thailand's teacher training institutions graduate approximately 6,000 teachers annually. The size of the problem of in-service training of teachers is indicated by the fact that approximately two-thirds of the elementary school teachers have had no formal training for teaching.

This teacher training project began in 1952. In 1954, a contract was made with Indiana University to work with the College of Education at Prasarnmitr in Bangkok and its two branches and with the Faculty of Education at Chulalongkorn University. Since 1957, other teacher training activities have been carried on under other projects (see especially General Education Development, 493-W-64-AR).

The Indiana University contract has concentrated on developing the four units named above into four year degree-granting institutions which will make their influence felt throughout the teacher training system of Thailand in the form of higher standards of teaching, better in-service training, and improved teaching methods and materials.

Under the Indiana-USOM contract, American technical advisors have been provided to Prasarnmitr and 150 Thai teachers have been sent to the United States for advanced training. Several classroom and laboratory buildings have been equipped through American aid, and a modern college library has been established.

With U.S. help, the College of Education and its branches have increased their student body from two hundred in 1954 to 2,500 in 1962. The library has grown in the same period from 400 to over 40,000 volumes and with better facilities and procedures, book circulation consistently exceeds 9,000 a month. An extension course for teachers in the Bangkok area enrolls about 1,200 students a year, another 900 students attend summer school. Twenty-five major textbooks and other publications have been prepared and published.

In addition to the work of the Indiana Contract, USOM provides other assistance in developing the 31 teacher training institutions of Thailand. This assistance has been in progress in some project or other since 1952. Some institutions have been combined with others. The program has been increased from two years to four years beyond the tenth grade and in four institutions to six years, resulting in a standard bachelor's degree. An effective teacher training supervisory unit has been developed at the Ministry of Education.

The teacher education curriculum has been revised, the administration improved, the number of students increased and the staff qualification greatly improved.

In FY 61 and 62 Provincial Teachers Colleges began in-service training on a large scale through week-end and twilight courses and through special 3 months' training courses for elementary teachers.

Project Descriptions
EDUCATION

TEACHER TRAINING - Cont'd

Demonstration schools have been built at most teachers colleges and student teaching in villages, coordinated with village improvement has been extended to 12 provincial teachers colleges.

Twenty-five Teachers College textbooks have been written and published for use in Provincial Teachers Colleges.

Approximately 250 Thai staff members, in addition to those sent under the Indiana Contract, have been educated abroad and have returned to staff the various teacher training institutions. More than \$600,000 in teaching materials and equipment have been supplied to those 31 institutions.

Also, consultant and advisory assistance is being provided to improve the overall organization and administration of higher education in Thailand and to accelerate the development of graduate programs in the degree granting institutions.

In order to enable Thailand to offer third-country training to teachers from Laos and Cambodia, USOM provided funds to construct classroom buildings at Udorn while the Thai Government constructed like facilities at Korat and Ubol. The U.S. Government contributed \$2,200,000 to this project and the Thai Government put in more than \$15,000,000. As of 1962, around 200 trainees from Laos and Cambodia have been educated in Thailand under this project. The costs of the trainees' tuition and maintenance are furnished by their respective USOM. Thailand provides the facilities, instruction, and the planning.

GENERAL EDUCATION DEVELOPMENT (493-W-64-AR)

Experience with several projects in educational assistance, dating back to 1952, led to an agreement between Thai education officials and USOM advisors in 1958 that a new integrated approach was necessary. The General Education Development project was worked out based upon the lessons learned in earlier pilot demonstrations and other types of assistance and involved the merging of a number of continuing projects in this general field.

This project develops demonstrational centers which it is hoped will lead to a general reform in the public education system. Curricula is being adapted to present day conditions, especially to the practical needs of young people for productive life in their own communities. The classroom methods are being shifted from emphasis on lecture and memorization to greater emphasis on student participation and problem-solving as a basis for development of democratic society and private enterprise. Teachers must receive more and better training since over half of those in service have had no professional training for teaching. A system of supervision is being developed to assure constant improvement in teaching, practice of methods adopted by the Ministry, and career development of teachers. Administration is being improved, especially by establishing the schools as an integral part of the community from which good ideas may spread, drawing support from parents, and preparing students for useful participation in the affairs of the community and in its growth.

All this involves close coordination of activities under the administration of several departments in the Ministry of Education -- elementary education, secondary education,

GENERAL EDUCATION DEVELOPMENT - Cont'd

vocational education, teacher training, and educational techniques -- and it requires decentralization of certain administrative and professional responsibilities to provincial and local officials.

An educational center in each of the 12 regions of Thailand has been established as the initial step in putting into effect the Ministry's long-range plan to raise the level of schools, to develop local education support and control, and to improve coordination within and among the Ministry departments and local units. From these centers the Ministry can effect a nationwide program for the general development and improvement of education.

Each center typically includes two elementary schools, two primary extension schools, two secondary schools, one vocational school, one teacher training institution, and one supervisory unit. The twelve centers include 83 project schools with approximately 40,000 students and 2,000 teachers. It is estimated that during the life of the project, the teacher training institutions in the centers will produce more than 18,000 new teachers. An additional 50,000 teachers will receive some form of in-service training through project-sponsored programs in the centers.

A Ministry of Education-USOM Education Division Joint Planning Committee has been established to formulate policy for coordination and implementation of all A.I. D. - supported projects in education. A General Education Development Project Operating Committee has been specially created to supervise this GED project as a sub-committee of the Joint Committee. These committees not only assure integration and coordination of all USOM assistance in the field of education but also establish the General Education Development project as an integral part of long-range plans of the Ministry for improvement of education in Thailand.

Now merged into the General Education Development Project (since 1958) are these earlier projects:

Curriculum Development (493-X-69-LI), begun in 1952, concentrated on a province-wide demonstration of a new approach to elementary education. Chachoengsao was selected by the Ministry of Education, where practices were developed and demonstrated which might be adopted in a general reform of elementary education in schools throughout Thailand. It was recognized by both Thai and American educators that improvements were necessary in this field to adapt to changing conditions and meet the developing needs of Thailand. The demonstration included reorganization of pilot project schools, changes in curriculum content and in methods of teaching, production of essential teaching materials, building of additional school facilities, training of teachers and principals to initiate these changes. Teachers from other provinces were assigned to the Ministry of Education to study and practice in the pilot project schools.

Five educators were sent to the U.S. for specialized study in elementary education, and 10 were sent to the Philippines and Japan to observe home-making, agriculture, crafts and the like from the standpoint of the contribution of the elementary school to the community.

Elementary Education (493-X-64-CB), begun in 1953, assisted the Ministry in various ways -- improvement and expansion of the Ministry supervisory unit in-service training programs for supervisors, establishment of supervisory units in each of the 71 provinces, coordination of teacher training with elementary and secondary departments, and revision of curricula of teacher training schools with raising of two-year programs to three-and-four-year programs. Vehicles and various types of educational equipment and materials were also supplied.

Project Descriptions
EDUCATION

GENERAL EDUCATION DEVELOPMENT - Cont'd

Secondary Education (493-X-65-CC), begun in 1956, selected four schools in the Bangkok area for demonstration of the comprehensive secondary school. Six weeks in-service training courses each summer reached about 1,000 teachers. In each subject field in all secondary grades, syllabi were revised, and improved with respect to content, teaching methods, lesson planning and evaluation. Six participants were sent to the U.S. for advanced training. Schools were supplied with science equipment, typewriters, sewing machines, shop tools and instruction materials.

Supervisory and In-Service Education (493-X-67-LH), begun in 1955, sought to help the supervisory and in-service education group of the Ministry of Education in its work of enabling area and provincial education officers to plan and carry out local school improvements. Emphasis was given to the development of primary extension schools and of supervisory service for elementary schools. The project sought to help teachers already in service through introducing them to some of the improved techniques that had been developed previously and to assist in the selection and training of area, province and district supervisory personnel. Five participants were trained in the U.S., and a variety of vehicles and equipment were supplied to school and supervisory units.

All USOM assistance to the Ministry of Education in these fields is now carried out through the single, integrated General Education Development project.

IMPROVEMENT OF VOCATIONAL EDUCATION (493-N-61-AB)

This project provides assistance to the Ministry of Education in the establishment of a national program of vocational education, including development of a supervisory staff. The supervisory staff will produce a corps of trained personnel in both the agricultural and trade-industrial areas. Through previous project activities substantial progress has been made in establishing trade vocational schools. There is growing acceptance of graduates in trade occupations being employed according to their skills rather than entering government work only. Likewise, there is an increased percentage of vocational agriculture graduates actually becoming farmers.

The vocational education program is implemented through three sub-projects as follows:

a. Improvement of Vocational Agriculture (493-N-61-AB) Vocational Agriculture schools are growing in importance in the expanding economy of Thailand as the need increases for leaders and skilled workers in agriculture and agriculturally related activities.

Assistance to the Ministry of Education in agricultural education was first initiated in 1952. Emphasis during this first phase of the program was with Mae Joh Agricultural School at Chiangmai and Surin Agricultural School at Surin. Their facilities were improved and the curricula revised. During the period 1953-1958 an American technical advisor was stationed at each school.

The second phase of assistance assumed a broader approach with materials, in-service and participant training being provided to more agricultural schools.

IMPROVEMENT OF VOCATIONAL EDUCATION - Cont'd

The third and present stage of assistance stresses development of a National Supervisory Staff, continued technical advisory assistance, in-service and participant training, and the supplying of essential additional equipment to the 17 vocational agriculture schools assisted in earlier phases of the activity. In addition, some assistance is rendered in the development of a young farmer training schools.

Over four hundred acres of bush and jungle land at various schools have been developed for use in demonstration and supervised farming programs. Livestock sheds, farm shops and other functional buildings have been improved. Water or electrical systems have been developed or improved to demonstrate effective educational procedure.

b. Improvement of Technical Institutes (493-W-61-BS) In 1952, a Technical Institute was established in Bangkok to provide training in 14 technical areas as well as in industrial arts, teacher education and vocational teacher education. Three regional branch institutes have also been established at Korat, Chiangmai and Songkhla. These programs are either terminal or preparatory to the final two years of technical training offered at the Bangkok Institute.

Major assistance to date was provided by a team from Wayne State University under contract to USOM. This group helped to develop a functional organization, prepared curricula that reflected technical needs of Thailand, trained teachers to a level of professional competence necessary to handle classes at a higher technical level, and developed an adult education program and physical facilities adequate for effective instruction. Fifty-three educators have been given at least one year of training in the United States.

The Bangkok Technical Institute now has an enrollment of about 5,000 students, Its buildings were constructed from Thai Government funds, but most of its equipment (generators, shop tools, industrial machiners, etc.) was supplied by USOM. The three branches of the Institute have a total of 1,500 students enrolled. Emphasis is being placed on improving these regional institutes through more and better equipped buildings and improved student selection and guidance procedures. These Institutes will offer courses on the technical level within the next five years.

c. SEATO Skilled Labor (Regional). (493-W-61-BR) Latest figures from the Statistical Office of the Thai National Economic Development Council indicate that Thailand presently needs approximately 30,000 skilled workers annually in existing trades and industries.

In 1958 USOM undertook to assist the Thai Government in a project to bring the output of existing industrial schools more in line with the actual skill needs of the Thai Labor force. This project is being carried out through a contract with the University of Hawaii. The chief objective is to expand and improve vocational education through the training of teachers and supervisors, preparation of courses of study, and improvement of school buildings and equipment in 19 vocational carpentry schools which have been converted to multiple-shop trade-industrial schools. Choice of these schools was based on a thorough survey of the country's need for skilled labor. They provide skill training in auto and diesel mechanics, building construction, machine shop, welding and sheet metal, basic electricity and radio telecommunications. The number of departments within each school varies according to the needs of the community.

IMPROVEMENT OF VOCATIONAL EDUCATION - Cont'd

A Teacher Development Center at Thewes, has been established, which is a typical vocational school with shop equipment comparable to that used in the 19 schools. This two year program will produce 140 trade instructors per year to man the 19 trade schools and other secondary schools of the Kingdom.

IMPROVEMENT OF ENGINEERING DEPARTMENT OF
CHULALONGKORN UNIVERSITY (493-W-66-BT)

A contract was made with The University of Texas in 1954. With the aim of helping Chulalongkorn University build its science and engineering faculties into up-to-date programs capable of turning out technicians with the training necessary in modern technology. Prior to that time USOM had directly assisted the Department through technical advice and participant training.

Under the University contract from one to four faculty members were provided during each of the six years. A total of 36 Chulalongkorn faculty members were sent to the U.S. for training, the University of Texas representatives advised in revising the curricula and improving teaching methods, and conducted conferences and short courses. They also advised in the development of a research program in the sciences and engineering fields. Equipment was selected, procured and installed for mechanical, electrical, civil, sanitary and hydraulic engineering laboratories. Scientific apparatus was furnished in the fields of physics, chemistry, biology, botany, geology, and architecture. More than 8,000 technical books were added to the library.

The project phased out in 1960.

COMPLETED EDUCATIONAL TRAINING PROJECT

The following projects, all completed, financed specialized training in the U.S. for Thai educational administrators and teachers:

Adult Education Training (493-X-66-CD) between 1952 and 1955.

Technical Education (493-X-66-CE) in 1953.

Education Administration (493-X-66-CF) in 1955.

Higher Education (493-X-66-CG) between 1955 and 1957.

Education General (493-X-69-CK) between 1955 and 1957.

Technical Education - Thammasart University (Project 493-66-CR133)
between 1953 and 1954.

SEATO GRADUATE SCHOOL OF ENGINEERING (493-W-66-BD(Regional))

In March, 1958, the Thai Government presented to the SEATO Council meeting at Manila a proposal to establish a graduate school of engineering to serve the countries of

SEATO GRADUATE SCHOOL OF ENGINEERING - Cont'd

the SEATO Region. The emphasis of the School in the beginning was to be on hydraulic engineering, of particular importance in the Region. It would, then, expand into other fields. The member countries approved the proposal and the U.S. agreed to provide much of the outside assistance needed by Thailand in carrying out the plan.

Chulalongkorn University was selected as the host institution for the School but administration was vested in a Board of Management appointed by the SEATO. Colorado State University Research Foundation was chosen to assist in the initial planning and subsequently to provide the U.S. contribution of faculty and staff and logistic support. The original contract was for six men for a period of three years, 1959-62, a total of 18 man-years of assistance. The number of men contributed has been gradually increased to ten, the contract has been extended to June, 1963, and further extension is in prospect.

The School officially opened in September, 1959, with first-year students in hydraulic engineering, only. In the second year, starting in June, 1960, structural engineering and highway engineering were added. It is anticipated that other majors will be added in the future to help meet the rapidly developing need for well-qualified engineers. The residence program leads to the degree Master of Engineering in two academic years. In addition, there are extensive "Special Programs" intended to bring new developments to practicing engineers. Research of various types is a very important part of the School's activities.

In the fourth year, 1962-1963, there are 62 regular students. They are from Thailand, the Philippines, Pakistan, Malaya, Taiwan, and India. Most are on scholarships provided by the member countries and administered by the School. Faculty members are provided by Thailand, the United Kingdom, France, and New Zealand in addition to the United States. It is now anticipated that the student body will increase to 150 in 1965-66.

IMPROVEMENT OF ENGLISH LANGUAGE TEACHING (Regional 493-W-69-BE)

For some time Thailand, Laos and Vietnam have been interested in improving the teaching of English but they have neither suitable materials nor sufficiently trained teachers for carrying out an adequate program. With approximately 500,000 students presently enrolled in school levels at which English is being or will be taught in the three countries, the need for professional assistance in this area was great. Teachers of English needed to be trained to meet the demands of these many students. It was necessary for each country to develop a corps of specialists to work in this field at the Ministry level and to work in teacher training institutions. With a community of needs, a tri-country project was proposed.

To implement this project a contract between the University of Michigan and A. I. D. /W was entered into in July, 1958. It involves a three-phase program: Linguistic analysis of the local language; preparation of teaching materials based on the analysis; and establishment or upgrading of training programs for teachers of English in teacher training and secondary schools.

Project Descriptions
EDUCATION

IMPROVEMENT OF ENGLISH LANGUAGE TEACHING - Cont'd

In Thailand, within a four-year period, 200 English teachers in the 31 teacher training schools will have undergone an intensive three-month course to improve their mastery of English and their skills in the teaching of English as a foreign language to native speakers of Thai. In addition, 1,200 elementary and secondary school teachers of English have participated in workshops for upgrading English programs in these schools. Also, special teaching materials and books for teacher training and secondary schools have been developed, published and placed in use. Textbooks for elementary schools are being completed.

One language laboratory has been installed in a teachers college and other are on order.

The other two countries participating in the project have made comparable progress.

Project Descriptions
 PUBLIC ADMINISTRATION
 CIVIL POLICE ADMINISTRATION
 & COMMUNITY DEVELOPMENT

TABLE OF PROJECT OBLIGATIONS

Dollars - U.S. Dollar contribution
 C/P - Local currency costs from Counterpart Funds
 T/G Budget - Estimated Thai Government contributions from regular budget in baht and kind.
 (All shown in terms of thousands of dollars)

<u>Commulative through FY 62</u>					
T/G					
7. PUBLIC ADMINISTRATION	Life of Project	Dollars	C/P	Budget	TOTALS
Bangkok-Thonburi City Planning 493-W-72-AV	1954-61	1,401	668	163	2,232
Institute of Public Administration (Thammasart University) 493-W-77-AY	1954-63	1,931	862	436	3,229
Modernization of Government Fiscal Planning 493-W-75-AW	1952-61	1,072	484	182	1,738
Economic Policy and Planning 493-W-75-AX	1956-63	477	192	266	935
Public Administration Training 493-X-71-CM	1952-58	232	118	48	398
Public Finance Improvement 493-X-75-CN	1954-57	105	-	35	140
Government Statistical Services 493-Q-78-AA	1957-63	323	116	398	837
Personnel & Management Improvement 493-Q-73-AB	1962-	262	96	69	427
TOTAL		5,803	2,536	1,597	9,936
8. CIVIL POLICE ADMINISTRATION					
493-W-71-AT	1957	5,411	1,394	132	6,937
9. COMMUNITY DEVELOPMENT					
Land Resettlement 493-X-81-CY	1954-55	-	129	539	668
War Relief and Rehabilitation 493-82-CR144	1954	-	233	-	233
Northeast Welfare 493-X-82-CZ	1955	-	209	-	209
Community Development 493-M-81-AC	1956-65	445	414	54	913
Low-Cost Housing Training 493-X-83-CP	1956	3	2	-	5
TOTALS		448	987	593	2,028
(Regional) Thai - SEATO Community Center 493-M-81-AD		115	-	-	115

Project Descriptions
PUBLIC ADMINISTRATION

BANGKOK-THONBURI CITY PLANNING (493-W-72-AV)

The project began in 1954 with the objective of assisting the Ministry of Interior to develop a comprehensive city plan for Bangkok and Thonburi. These two municipalities constitute a single metropolitan area containing an estimated 90% of the urban population of Thailand. The present population (1962) numbers approximately 2 million persons and is doubling every 15 years.

The original contract was carried out by a contract team of the American architectural and engineering firm of Litchfield Whiting Bowne and Associates, in collaboration with the city planning consultant firm of Adams, Howard and Greeley.

Accurate maps of the urban area were developed for planning purposes. Controlled aerial photo-mosaic maps were made, as well as ground surveys for developing topographic data and for mapping and measuring land use. All existing facilities were inventoried and all necessary information compiled. From these data, a comprehensive city plan was developed, including a complete land use plan, a public works improvement plan, a plan for financing city growth and related service and distribution plans.

The original contract terminated on Aug. 13, 1960 with the completion of the final comprehensive report "The Greater Bangkok Plan, 2533".

The project was continued on an interim basis until May 1961 by means of a one-man contract between Samuel J. Cullers and the Ministry of Interior. The purpose of this contract was to assist the Thai Government in the implementation of the comprehensive plan and to assure the operational effectiveness of the newly-established planning agency.

A USOM City Planning Advisor currently assists in the implementation of the plan, the institutionalization of planning, the preparation of planning legislation and the development of plans for other cities.

INSTITUTE OF PUBLIC ADMINISTRATION, THAMMASART UNIVERSITY (493-W-77-AY)

The purpose of this project is to establish an institution capable of providing high-quality training in public administration. The project is carried out through a contract between Indiana University and Thammasart University, Bangkok, financed by ICA and Thai Government funds. It began in 1954 and is scheduled for completion in 1963. Further extension and/or broadening of the Contract is dependent on the outcome of current developments.

The aims of the project are to improve and expand the Institute's graduate academic program in public administration; to provide in-service training for government officials; and to establish research facilities for providing technical consultative services to the Government of Thailand.

A two-year graduate curriculum with a capacity of 60 new students per semester has been established. An in-service training program under the aegis of a Thai Government advisory board chaired by the Prime Minister, has conducted 176 training courses in six fields of application for middle and senior level Thai Government officials. A significant research and publications program is under way, including the quarterly publication of the

INSTITUTE OF PUBLIC ADMINISTRATION, THAMMASART UNIVERSITY - Cont'd

Thai Journal of Public Administration. A public administration library has been established with a collection of 15,000 volumes in English and Thai. The institute is setting up a central library service to make the resources of this special library available to other Thai Government agencies.

To strengthen the staff and program of the Institute, selected staff members and others have been sent to the United States for advanced study in public administration and supplemental fields. Fifteen full-time staff members and eight part-time lecturers of the Institute have received such training.

There has been a gradual transfer of teaching responsibility from the Indiana Contract Consultants to the Thai staff of the Institute. All but one course of instruction is now being given by Thai staff members. Increasing financial responsibility is being assumed by the Thai Government.

MODERNIZATION OF GOVERNMENT FISCAL MANAGEMENT (493-W-75-AW)

This project, begun in 1952, finances a contract between the Thai Government and the Public Administration Service of Chicago, designed to assist the Thai Government to improve and modernize fiscal management and administrative management.

With improved fiscal and administrative management and planning, Thailand will be better able to program and finance its economic development. The purpose of this project is to make studies and recommendations and furnish technical assistance leading to a revision of laws and regulations governing budgeting, accounting, auditing, and tax and customs administration; installation of more efficient financial organization, procedures and reporting systems; and installation of operational improvements in revenue and tax systems.

Reports including proposed legislation, have been submitted, in the fields of budgeting, accounting, and auditing. A new budget law has been enacted; a central Budget Bureau has been organized and staffed; and the Government's budget since 1959 has been prepared in a new and more meaningful format along the recommended lines. A new accounting system has been installed which maintains control over budgetary expenditures and produces other current information for management purposes. An organization and methods division within the central Budget Bureau was established in 1961. This new unit has conducted administrative studies and installation surveys for a growing number of governmental departments leading to improved organizational structure and more modern administrative procedures, systems, and work methods.

75 officials of the Thai Government have been trained in the U.S. and 35 in other countries, in various fields of fiscal and administrative management. In Bangkok 40 key personnel have undergone intensive training in budget administration; over 100, including Changwad treasurers, have been trained in new accounting procedures; and 15 are being trained in organization and methods survey and installation work.

ECONOMIC POLICY AND PLANNING (493-W-75-AX)

This project finances the services of a group of advisors to the Ministry of Finance and other key agencies concerned with economic policy and planning. The objective is to provide advice and assistance to the Thai Government in the following areas: (1) economic development programs; (2) budget and relevant fiscal practices; (3) external economic and financial affairs; and (4) the financial relationship of public enterprises to government and general policies relating to such enterprises. Dr. John A. Loftus has served as chairman of an Economic Survey Group which reported to the Thai Government measures necessary for the desired improvements in economic policy and planning in Thailand. He assisted in the selection of participants for training in his general field of work. A total of over 20 such officers and specialists are either in the U. S. for training or are programmed from current funds.

Dr. Loftus began work in 1956. He was joined in 1961 by two other advisors, Dr. Glen L. Parker in the field of industrial economics, and Mr. Harvey Klemmer in the field of transportation and communications. Their work has resulted in a great number of recommendations, as well as critiques of Thai Government operations in development economics.

During 1962 the principal advisory tasks to the Thai Government in these fields were centralized in a team of advisors from the International Bank for Reconstruction and Development (IBRD). Accordingly the U.S. contract will expire on June 30, 1963.

PUBLIC ADMINISTRATION TRAINING (493-X-71-CM)

One of the handicaps of Thailand's government in marshaling, managing and directing its resources for its own development is the shortage of personnel trained in public administration theory and practice, coupled with the lack of an institution for training them.

Beginning in 1952, before the establishment of the Institute of Public Administration at Thammasart University (Project 493-W-77-AY), this project undertook to send to the U. S. for training in various phases of public administration a number of officers selected from various departments and agencies of the Thai Government. When the project was completed in 1958, a total of 72 participants had been trained abroad in such aspects of government as tax collection and administration, economic development administration, customs practices and administration, administrative management, police administration, and others. Many of these participants now hold key positions in their respective ministries. Training in public administration is being continued in connection with other projects.

PUBLIC FINANCE IMPROVEMENT (493-X-75-CN)

Between 1954 and 1957 a contract group from Howell and Company, Washington, D. C. studied the administration of existing tax laws and regulations. A six-volume comprehensive report and analysis of the revenue system of Thailand was published, also an audit and enforcement manual. As a result of the Howell team's work, some minor reorganization was accomplished in the Customs Department through the institution of the customs technique section and in the Revenue Department through creation of a research, statistics, and training division. A number of recommendations of the Howell group were adopted, including machine accounting and a two-week training course for 150 revenue officers from all over the Kingdom.

GOVERNMENT STATISTICAL SERVICES (493-Q-78-AA)

The Government Statistical Services project was established in 1957 to assist the Thai Government in developing a national statistical system capable of supplying basic statistics required for economic and social development planning and for administrative purposes. Until July 1959, technical assistance in statistics was limited to participant training; since that date limited advisory services have also been provided.

Deficiencies in statistics, both in terms of quantity and quality, were great at the time the project was established, and most of these deficiencies, especially in the field of economic statistics, continue to handicap economic and social development planning. At the same time, some statistical deficiencies have been overcome. A population census was taken in 1960, and publication of the results completed in 1962; a study of family income and expenditures on a sample basis in Bangkok/Thonburi and the Northeast is nearing completion, and this result will permit establishing a cost-of-living index for these areas; the present method of construction the retail price index has been examined and a proposal for a revised index is in preparation; preparation for an agricultural census, including the preparation of maps, in April 1963 is nearing completion; a sample survey to measure employment and unemployment and to obtain other demographic and economic data has been initiated; a survey of the textile industry has been completed and the results are now being tabulated; approval was recently given to the reorganization of the Central Statistical Office along lines that will enable it to meet more effectively its responsibilities under the Statistics Act of 1952, and place it in a position to assume leadership in the statistics field.

The participant training program, under which about 30 persons have been trained, is designed both to increase the technical competence of persons engaged in statistical activities in the several ministries and to strengthen the teaching of statistics in the universities.

PERSONNEL AND MANAGEMENT IMPROVEMENT (493-Q-73-AB)

This project is designed to assist the Thai Government to strengthen and extend the activities of the Civil Service Commission and the Budget Bureau, both of which are under the Office of the President of the Council of Ministers (Prime Minister). The project commenced in the latter part of FY 1962. The Civil Service Commission intends to improve and modernize its recruitment, examination, and selection procedures; to install an appropriate position classification system; to install and maintain an equitable pay plan, and to introduce improved techniques and practices in other areas of personnel administration.

Assistance to the Budget Bureau will concentrate on the newly formed Organization and Methods Division where it is necessary to increase the technical skills of the staff in their critical tasks of reviewing organization structure, staffing patterns, coordination, planning and programming, and other management functions of all the Thai Government Ministries and Agencies. The work has already commenced with surveys of the Highways Department, the Revenue Bureau, the Public Health Department, and Department of Agriculture.

In both instances, the project aims to meet a principal aim of the Aid Program to strengthen the government administration that must carry on the economic development program.

Project Descriptions
CIVIL POLICE ADMINI-
STRATION

CIVIL POLICE ADMINISTRATION (493-W-71-AT)

Thailand's National Police Department is the primary force for maintaining law and order, preventing crime, apprehending criminals, protecting life and property, and preserving internal security throughout the Kingdom.

This project began in 1956 to strengthen the police force through training, guidance, and other types of assistance to improve its efficiency and effectiveness. Specifically, American technical advisors and their Thai counterparts are engaged in:

1. Improving the investigative structure of the Department with emphasis on subversive activities, by combining all such functions under a single command, with responsibility for coordination where more than one geographical command is involved. Further improving the effectiveness by establishing branch offices in strategic locations throughout the Kingdom.

2. Reorganizing the criminal records system, which involves instituting a new reporting system and combining into one unit the present criminal records office, identification unit, statistical unit, stolen property files, and modus operandi files.

3. Expanding and reorganizing the identification unit for more efficient operation, to process a larger volume of fingerprint cards and expedite requests for identification checks.

4. Improving effectiveness of the police science laboratory by training of technicians and furnishing needed equipment.

5. Creating an effective Bangkok metropolitan police organization through reorganization and by assigning to it certain functions presently assigned to other units of the National Police, and by creating a Mobile Patrol Unit to provide quick response to citizen requests for police assistance.

6. Centralizing all police training, educational functions, and inspections under one command, revising curricula and schedules, eliminating duplications, insuring uniformity of training, and utilizing qualified instructors, and at the same time sharply increasing police training activities at all levels.

7. Strengthening the Immigration Division to enable it to keep better controls on alien residents and prevent illegal entries of aliens.

8. Increasing the effectiveness of the Border Police, which is charged with protection of borders against smugglers, prevention of illegal border crossings, and suppression of marauding bandits in border provinces.

9. Establishing a motor maintenance facility for servicing all Police Department vehicles.

10. Developing within the Border Police a program of Civic Action designed to provide modest facilities for meeting the educational, medical, agricultural, and village improvement needs of people in the very remote areas.

11. Developing a capability within the Provincial Police to combat insurgency, subversion, and other criminal activities throughout the rural areas of Thailand.

Project Descriptions
CIVIL POLICE ADMINI
STRATION

CIVIL POLICE ADMINISTRATION - Cont'd

12. Providing a program of maintenance and repair facilities throughout the Kingdom to service the growing number of police vehicles of all types. This also includes training of drivers as well as mechanics.

COMMUNITY DEVELOPMENT (493-M-81-AC)

USOM first responded to a Thai request for assistance in the field of Community Development in 1956 at the time when Thailand was experimenting with a number of CD programs differing widely in organization and concept. A technical advisor was provided and a few participant grants were made to enable Thai officials to study Community Development activities in other countries with similar problems.

In 1959, primary administrative responsibility in the field of CD was assigned to the Department of Interior. USOM continued to provide technical advice and increased the participant program.

In the year 1960, the major joint effort was made to get a national organization established and to demonstrate effective local patterns of operation to provide a practical base for effective program coverage. A Bureau of Community Development was established in the Department of Interior.

To secure a common base of understanding of purpose, content, and method of the program, a series of eight Regional Interministerial CD Orientation Conferences were held during the year, covering the entire country. All Governors, Deputy Governors, District Officers and Ministerial representatives in the Changwads and Amphurs took part in one of these five-day orientation conferences on the principle and methods of CD, local government, improved human relations and two-way communication.

The general purpose of the CD program is to help villagers establish and use group procedures in analyzing their community problems and in planning and carrying out joint cooperative self-help community improvement projects. Village Community Development Committees are established as a rudimentary institution for the exercise of group responsibility, and self-help methods are emphasized.

The program is planned as a coordinated program with the various subject-matter ministries carrying responsibility for activities within their respective subject-matter areas with the CD staff providing a central administrative and coordinating service.

The intention is to foster the growth of local self-government, strengthen the villagers capacities in this direction, and assist them to secure and use the technical assistance that they need from the various governmental services in carrying out projects in agriculture, health and sanitation, roads, local facilities, etc. and to progressively involve them in an understanding of and participation in the National Development Plan.

Four Area Coverage Pilot Projects were set up in the Changwads of Udorn, Srisaket, Yala and Narathivas. The CD workers with the coordinated support of the Nai Amphur and the technical representatives of the various subject-matter ministries help villagers to work

COMMUNITY DEVELOPMENT - Cont'd

through village CD Committees to analyze their own community situation and organize self-help and cooperative group projects to deal with what they consider to be their most urgent problems. Technical assistance is made available to the villagers on the technical aspects of these projects and needs for supplies and equipment beyond the resources of the villagers are met through grant-in-aid funds made available jointly by USOM and the Thai Government.

In 1961, the Thai Government recognized that a stronger national organization to provide an effective administrative and coordinating support for the program was needed and plans for the creation of a Department of Community Development in the Ministry of Interior were set in motion. Two more Area Coverage Projects were initiated and the existing four were expanded to cover the entire amphur in which they were operating. A decision was reached to adopt the area coverage pattern of operation as the basis for local CD operation and for future program expansion. The need for a National Policy Statement to define and give direction to the program and guide its subsequent development in close relation to the National Economic Development Plan was recognized. At the end of the year 110 workers were working with villagers in 820 villages. USOM increased its support of the developing Thai CD program both in terms of personnel, commodities and participant grants. Thirteen Thai officials studied abroad in America and neighboring countries under a \$26,000 participant program. Four jeeps, 20 motor bicycles and 90 bicycles were purchased to provide transportation for CD workers in the field. In addition, ₪ 400,000 was provided to support CD training and audio-visual programs and 1.9 million baht was granted to village self-help projects. Nine American technical advisors in the fields of CD administration, training, audio-visual aids, research and evaluation, and area operations were recruited.

In 1962, plans for the creation of the Department of Community Development were completed and legislation authorizing the Department was finally passed on September 20. Ten new Area Coverage Projects were opened in the Northeast and the South in response to the Thai Government's decision to give priority to development activities in these areas in view of the urgencies in the present situation. Participant grants in the amount of \$65,000 have been planned to support study and observation abroad by 28 Thai officials. Twenty-five jeeps, 30 motor bicycles, and 340 bicycles to provide transportation for CD workers were provided. A Special Consultant was provided to make a survey of the critical training situation. ₪ 1.1 million was provided to assist with training and audio-visual activities of the program and ₪ 2.3 million was provided for grant-in-aid financing of village projects.

A base for regional and technical support for the changwad and amphur CD operations has been provided through the creation of the Thai-Seato Regional CD Technical Assistance Center in Ubol and an international group of technical experts provided by the Seato member countries will operate from that Center to plan coordinated utilization of public works, public services, and CD resources in an attack on the rural development program of a defined area.

Project Descriptions
GENERAL AND MISCELLANEOUS

TABLE OF PROJECT OBLIGATIONS

Dollars - U.S. Dollar contribution
 C/P - Local currency costs from Counterpart Funds
 T/G Budget - Estimated Thai Government contributions from regular budget in baht and kind
 (All shown in terms of thousands of dollars)

Cummulative through FY 62

10. GENERAL AND MISCELLANEOUS	Life of Project	Dollars	C/P	T/G Budget	TOTAL
Program and Technical Support 493-2-99-AA, CT	1951 Cont.	4,767	7,407	434	12,608
Audiovisual Services and Training 493-W-96-BB, DF	1953-65	527	828	70	1,425
Atomic Energy for Peaceful Purposes 493-W-98-BU, LQ, CR	1955-63	275	71	64	410
General Training 493-X-99-CU; X-41-BP	1954-60	235	146	105	486
Pitsanuloke Reconstruction 493-X-99-DG	1957	-	195	-	195
Industrial Development Survey 493-W-91-AZ	1960-62	305	7	-	312
Industrial Technical Advisory Service 493-W-92-BA	1960	126	29	40	195
TOTALS		6,235	8,683	713	15,631
(Regional)Mekong River Studies 493-W-99-BF	1958-62	2,212	-	400	2,612
(Regional)Mekong River Reconnaissance 493-Z-99-CS	1956	45	3	-	48

Project Descriptions
GENERAL AND MISCELLANEOUS

PROGRAM TECHNICAL SUPPORT (493-Z-99-AA)

This project consolidated all the technical support costs of operating Thai-American cooperative programs, including: (1) Technicians and clerical assistance for administering the various projects in subject-matter fields; (2) procuring certain supplies, equipment, and vehicles needed for the operation of USOM; (3) international travel, English-language training and testing, and medical examinations of Thai selected for participant training abroad; and (4) helping finance the operational costs of the Thai Technical And Economic Committee, which is the Thai agency for coordination of American assistance and liaison between USOM and the Thai Government.

The project consolidates projects going back to 1951, as follows: 493-W-19-AQ, 493-X-59-B2, 493-X-69-CJ, 493-X-79-CO, 493-X-99-CT.

AUDIOVISUAL SERVICES AND TRAINING (493-W-96-BB)

This project, begun in 1953 as a fund for financing printing, film making, and exhibits, was shifted in 1956 to the establishment of a Thai-American audiovisual service. The project rendered supporting services to all Thai-American cooperative activities in the form of audiovisual materials, advice, and training for promoting the teaching, training, public education, and public information objectives of technical assistance programs. It produces printed materials, art services, photographic services, silkscreen printing, educational films, filmstrips, and training aids for spreading knowledge among the Thai people. Services are rendered to the various Ministries and departments, through the respective American technical advisors. The project fully equipped a production facility (the only centralized service of this kind in the Thai Government), staffed it, and trained the staff to operate it.

From October 16, 1961 to November 9, 1962 a series of formal training courses were conducted for officers of the Thai Government. The training project cooperately developed with the TTEC using both American and Thai staff as instructors was entitled "An introduction to Communications and the Communications Media." During this period 208 Thai officials representing all government ministries and the armed services completed the seventy-hour course.

The project phased out June 30, 1962 and its activities were incorporated with those of the Communications Media Program Support Division.

In 1956 a related project (93-06-141) provided local currency assistance to the Central Information Division of the Thai Government in support of a program of anti-communist education and information, particularly in the Northeast region. This information program was conducted by teams of information officers of CID with the support of USIS.

ATOMIC ENERGY FOR PEACEFUL PURPOSES (493-W-98-BU)

Atomic Energy for Peaceful Purposes is a project that stems from President Eisenhower's "Atoms for Peace" speech in 1953. The project is concerned primarily with the training of personnel who will be qualified to operate a nuclear reactor, to instruct graduate students in its use, or to perform research related to the scientific needs of Thailand. It is planned that scientists in the fields of medicine, industry, agriculture, and biology will make use of the

ATOMIC ENERGY FOR PEACEFUL PURPOSES - Cont'd

reactor. The project also has been concerned with providing equipment and supplies for a nuclear measurements laboratory at Chulalongkorn University, furnishing laboratory equipment and supplies for a radioisotope laboratory in the Department of Science, and supplementing equipment for the Cobalt-60 1,000 Curie source radiation unit at Siriraj Hospital, Bangkok.

By the end of FY 62 when the project was phased out 40 participants in biology, industry, agriculture and medicine either had received training or were in training in United States graduate programs. Since a reactor of the size being procured by Thailand has a usual staff of about 35, the minimum training objectives will be met by the time the reactor is in operation.

The site of the reactor was shifted because of the limited amount of land at Chulalongkorn and because of the population congestion in the immediate vicinity. The move was made with the concurrence of a representative of the United States Atomic Energy Commission. A contract for the building has been let, and ground was broken in June, 1960. It is expected the building will be completed and the reactor installed by the end of November, 1962. The Curtiss Wright Company is constructing the reactor.

While there will be the minimum number of people trained to operate the facility by the completion date, the training projected through FY 1963 will make possible extensive utilization of the reactor. The continuation of the project, in effect will permit widespread and efficient use of highly expensive scientific equipment (total value of approximately 1-1/2 million dollars).

GENERAL TRAINING (493-X-99-CU)

Since 1952 this project has financed training of Thai participants abroad, in fields such as agriculture, education, labor, public administration, program planning, and governmental procurement, who were not funded out of individual projects. This project also finances costs of American training officers in charge of USOM's participant training program. This project was phased out in FY 60.

PITSANULOKE CITY RECONSTRUCTION (493-X-99-DG)

In December 1956 the entire heart of the business district of the town of Pitsanuloke was razed by a disastrous fire. The devastation was so great that government agencies, charitable groups, and organizations all over Thailand responded with assistance of many kinds.

After a quick reconnaissance, American and Thai engineers concluded that the down-town area should be reconstructed along modern lines, with better and wider streets, a good sewer system, sidewalks and gutter, and a new bridge across the Nan River. USOM undertook to finance the reconstruction.

The work was performed under contract by two local firms. It involved the building of 1600 linear meters of concrete streets with curb and gutter, sewer pipes and sidewalks in the heart of the business district. The proposed bridge was added to the East-West highway project and was not included in this undertaking.

The completed project was dedicated in an elaborate ceremony arranged by the officials and citizens of Pitsanuloke on June 17, 1958. All the streets were decorated, all school children were out with Thai and American flags, and numerous placards were displayed in the crowd, bearing such messages as "Not a dream but a real gift".

LAND RESETTLEMENT (493-X-81-CY)

This was a short-range project begun late in 1954 and ended the following March, to assist the Ministry of Interior, Department of Public Welfare, with its program for adding Thai nationals to obtain their own land through clearing and settlement. A training and observation trip to India for a Thai officer was financed, for the study of Indian community development. Two buildings and about 17 kilometers of roads were built, and certain equipment was supplied.

NORTHEAST WELFARE (493-X-82-CZ)

This project of Counterpart funds was established in 1955 to enable provincial governors to deal with the more urgent problems of the Northeast, a historically depressed area which was suffering from the added burden of refugees from Indo-China fighting, scarce food supplies, and political agitation. Funds were made available to the governors and were used for the more immediate necessities of food, seed, blankets, and the like.

INDUSTRIAL DEVELOPMENT SURVEYS (493-W-91-AZ)

This project assists the Government of Thailand in realizing their plans for a more diversified economy, particularly in respect to the development of the industrial sector. It will complement the Thai industrialization program by providing contract services of advisors in the fields of investment, industrial districts and publicity media for investment opportunities.

Specific targets of the project are:

- a. A study of the industrial needs and industrial potentials in Thailand accomplished through a general survey and surveys of particular industries.
- b. Assisting the Thai Government on methods and applications of industrial districts, through the services of an advisor on industrial districts.
- c. Assisting the Thai Board of Investment in advertising investment opportunities in Thailand, through the services of an advisor on industrial publicity media.

INDUSTRIAL TECHNICAL ADVISORY SERVICES (493-W-92-BA)

A major obstacle to economic development in Thailand has been the scarcity of medium and long-term credit at reasonable rates of interest coupled with a lack of technical knowledge on the part of private entrepreneurs. To overcome this obstacle, this project has provided aid in the establishment of the Industrial Finance Corporation, a new commercial institution now in operation.

Project objectives have included:

Assisting the Thai directors in establishing a loan policy keyed to the objective of promotion the sound development of private enterprise in Thailand; furnishing expert assistance in setting up an accounting system and correct methods and administration controls; instructing

INDUSTRIAL TECHNICAL ADVISORY SERVICES - Cont'd

administrative personnel on proper standards for evaluation of loan applications; and providing an industrial consultant service for the benefit of loan customers.

(REGIONAL) MEKONG RIVER STUDIES (493-W-99-BF)

The report of the United Nations Survey Mission on the Lower Mekong River Basin, 23 January, 1958, (Wheeler Report) recommended a series of studies and investigations of the river, including the collection of basic engineering data. The report emphasized that the collection, collation and analysis of basic data were essential before serious consideration could be given to selection of specific sites for water resources development projects, as too little is known about this mighty stream.

Of the several nations first offering assistance in this undertaking which is spearheaded by ECAFE, the U.S. undertook to assist by:

- (1) Establishing water stage recording gauges at 37 points on the main river and tributaries, collecting and analyzing data on stages at these stations and on flow at 31 of them.
- (2) Setting up rainfall and evaporation recording stations at about 79 points in the Mekong Basin and analyzing the data collected.
- (3) Training nationals in cooperating countries in this work.
- (4) Completing precise leveling and establishing horizontal control from the mouth of the Mekong to the Burma border.
- (5) Completing a detailed hydrographic survey by taking cross-sections of:
 - (a) Mekong River from mouth to the Cambodian border.
 - (b) Bassac Distributary from the mouth to Long Xuyen, Vietnam.

An engineering firm, Harza Engineering Company, was selected and preliminary work began in December, 1958. Harza completed their work and turned over the data collection systems, the data collected and analyses of that data to the Committee for Coordination of Investigations of the Lower Mekong Basin (ECAFE) in the summer of 1962.

Further work is also being undertaken by the U.S. The U.S. Bureau of Reclamation will begin a semi-detailed land classification study of the Pa Mong Basin in 1962. Projects are planned for providing spare parts for the data collection system and for mapping and hydrology of nine tributaries of the Mekong River.

Although the U.S. contribution to this great work is sizable, \$ 4.7 million, many other countries and agencies have made generous contributions. As of May 1962, these comprise the following:

Project Descriptions
GENERAL AND MISCELLANEOUS

(REGIONAL) MEKONG RIVER STUDIES - Cont'd

COUNTRY	CONTRIBUTION	ESTIMATED VALUE (U.S. \$ Equivalent)
Australia	1/ 2/ (damsite geology)	409,500
Canada	1/ 2/ (aerial photography)	1,365,000
China	2/ (cement, study tour)	105,500
France	2/ (hydrology; fisheries, sedimentation, vegetation, and soil studies; delta reclamation planning; bauxite and other minerals prospection; geological mapping)	700,000
India	1/ 2/ (Tonle Sap project plan; rain gauges)	282,000
Iran	(petroleum products)	54,600
Israel	2/ (Prek Thnot project plan: irrigation; cement)	201,240
Japan	1/ 2/ (tributaries reconnaissance; Sambor preliminary project plan; Nam Pung project plan; Prek Thnot project plan: dams and hydroelectric power; Upper Sre Pok project plan: hydrology)	652,000
Netherlands	(programme to be arranged with Committee)	138,000
New Zealand	(jet and survey boats; Tonle Sap project plan: equipment)	183,000
Pakistan	1/ (programme to be arranged with Committee)	100,000
Philippines	1/ (topography)	235,294
United Kingdom	1/ (hydrology, meteorology, hydrography, navigation improvement)	364,000
UN/ECAFE	(expert services and administrative support for Committee and Executive Agent; figure given is budget figure for 1961, 1962)	148,161
UN/TAB	2/ (coordinates Expanded Technical Assistance Programme through which most of the BTAO and specialized agencies participation listed below is channelled)	
UN/BTAO	(Wheeler Mission; experts; Advisory Board; executing agency for UN Special Fund tributaries, hydrography and minerals projects listed below; support to Office of Executive Agent)	362,799
ILO	(manpower analyses)	12,104
FAO	(agriculture and forestry studies; subcontractor for agricultural stations in Special Fund tributaries project listed below)	125,930
UNESCO	2/ (executing agency for UN Special Fund mathematical delta model listed below: seismic survey)	16,800
WHO	(schistosomiasis and malaria studies)	5,077
WMO	(hydrometeorology)	45,300
IAEA	(isotope studies of hydrology and sedimentation)	5,650
International Bank	(provides member in Advisory Board)	
UN Special Fund	(four tributaries project designs, hydrographic survey, minerals survey, mathematical delta model 2/)	2,719,900
		<u>8,231,855</u>

Project Descriptions
GENERAL AND MISCELLANEOUS

(REGIONAL) MEKONG RIVER STUDIES - Cont'd

COUNTRY	CONTRIBUTION	EXTIMATED VALUE (U. S. \$ Equivalent)
Local costs paid or pledged by the riparian countries:		
- under Canadian program	105,000	
- under Indian program	50,000	
- under US hydrology program	400,000	
- under post-US hydrology program (first 4/7 months, approximate)	160,000	
- under UN Special Fund Tributaries Project	454,000	
- under UN Special Fund hydrographic survey for navigation improvement	327,700	
- under UN Special Fund Minerals survey	233,640	
- under UN Special Fund mathematical delta model project	100,000	
- under Japanese Prek Thnot project	72,000	
- for Nam Pong Tributary project construction	6,000,000	
- under Japanese Sambor preliminary project	1,500	
- under Japanese Nam Pung project	18,400	7,922,240
		<u>TOTAL</u> 20,854,095

1/ Through Colombo Plan

2/ Contribution includes fellowships, the cost of which in most cases is not included in above figures

(REGIONAL) MEKONG RIVER RECONNAISSANCE (493-Z-99-CS)

In 1955 the governments of Cambodia, Laos, Thailand, and Vietnam requested A. I. D. (then ICA) to make a reconnaissance survey of the Lower Mekong River to define possible immediate improvements and potential long-range projects designed to develop the river's potential for the benefit of the four countries involved.

USOM financed a survey under the leadership of U.S. Bureau of Reclamation officials, which followed the Mekong River from the China border to the China Sea, as well as its main tributaries, and resulted in a report entitled, "Reconnaissance Report, Lower Mekong River Basin, March 1956." This report has been useful in further studies and plans for development of the basin of last great undeveloped river of the world.

November 62  Job No. 963
COMMUNICATIONS MEDIA DIVISION
Printed by Thai-American Audiovisual Service