

The USAID Contribution to the Economic Development of

BIHAR



**U.S.A.I.D. Mission to India • New Delhi
Office of Development Policy
Program Division**

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BIHAR

Twice since 1965, Bihar has shot into world's news with two successive years of drought and one of the world's worst famines. Of those familiar only with recent history, few may believe that Patna, the capital of the State, in its previous incarnation under the name of Pataliputra as the capital of Maghada, exercised an influence on the affairs of the civilized world for almost a thousand years from 500 B.C. to 500 A.D. ; this long period of uninterrupted glory was equaled neither by Rome nor Athens. It was from here that Chandragupta Maurya, a contemporary of Alexander of Mascedonia, established and ruled India. From here also, Ashoka and Sher Shah—two of India's great sovereigns—established their empires.

Bihar is the land of "Vihar" which means to wander about for pleasure and recreation; the state is full of natural beauty and ancient relics. But the word "Vihar" is associated also with Buddhist culture (vihar : place of monks) and it is this association that might have given the present state its name since the state was the center of Buddhist culture for several centuries.

Many areas in Bihar have retained an aura of grandeur they enjoyed in history. Ancient buildings, monasteries, temples, memorials, hill ranges, minerals, forests and wild life in the state provided attraction to people of diverse interests and tastes. The towns of Bodh Gaya, Patna, Nalanda and Rajgir stand as historic monuments.

Bihar is comparable in size to the State of Washington in the United States; with an area of 67,196 square miles, it ranks eighth in size among India's 18 states. The state is bounded by Nepal on the north, Orissa on the south, West Bengal on the east and Uttar Pradesh on the west.

Next to Uttar Pradesh, Bihar is the most populous state in the country. With only 5.8 per cent of India's total area, it accounts for 10.6 per cent of the country's population. With an estimated population of more than 57.4 million in 1970, it had a density of 854 persons per square mile—nearly twice the all-India average of 441.

Bihar has seven cities with a population of 100,000 or more. The largest city is the state capital, Patna, followed by Jamshedpur—the Pittsburg of India, and Ranchi—the summer seat of the State Government. Almost 92 per cent of the total state population is rural and lives basically on agriculture.

GEOGRAPHY AND CLIMATE

Geographically, the state can be divided into two distinct physical units—north Bihar and south Bihar. The north is almost a level plateau while the south is hilly and wooded.

North Bihar, one of the most fertile areas in the country, owes its fertility largely to the three rivers that flow through it—the Sarayu, the Gandak and the Ganges. The Ganges

serves also as a major transportation channel, it being navigable over a long distance in the State; this river plays a vital role in Bihar's economy as well as in its cultural and religious life.

South Bihar, particularly the districts of Chhota Nagpur division and the Santal Parganas, is thickly wooded and very hilly. Elevation varies from 1,000 to 4,000 feet. The forest yields large quantities of raw materials for the production of paper and board. These forests are also rich in wild-life including tigers, leopards, bears and several kinds of deer.

The average rainfall for the state is about 50 inches, nearly all of which falls between June and October (the "monsoons"). In view of the extremely limited irrigation facilities, failure of the annual monsoons can play havoc with the state's economy.

AGRICULTURE

Agriculture is the mainstay of the people of Bihar. Of the total area comprising about 17.4 million hectares, about 11 million hectares are cultivated annually, of which only 2.01 million hectares have irrigation facilities. With the development of new irrigation projects, the acreage under irrigation is expected to increase in the future. The major part of the agricultural land is under food crops including rice, millets and pulses. Only a small portion of the land is under commercial crops such as sugar-cane, jute and oilseeds. The major crops are as follows :

	<i>AREA</i> (000 hectares)†	<i>PRODUCTION</i> (000 tons)
FOODGRAINS		
Rice	5,428	5,197
Barley	294	183
Maize	958	1,019
Wheat	1,095	1,259
Gram	238	159
Millets	448	205
Pulses	1,350	847
CASH CROPS		
Potato	205	1,766
Oilseeds	186	82
Sugar-cane	152	591
Jute, Mesta and Sannhemp	122	495*
Dry Chillies, Turmeric	29	28
Tobacco	14	14

FOREST

The forest in Bihar covers 13,000 square miles (2.9 million hectares), about 17 per cent of the land area. Special emphasis is placed on the planting of products which have high

†1 hectare=2.471 acres

*bales

commercial value, especially bamboo, teak and eucalyptus. Other important forest products are—sal, commonly found in Singhbhum district. Lac is another important forest product, particularly because of its export value. Bihar accounts for 60 per cent of the total Indian production of stick lacs.

INDUSTRY

While Bihar's full industrial potential is yet to be developed, several important undertakings have been established. Important in the private sector are those located at Jamshedpur—the gigantic Tata Iron & Steel Company (TISCO), the Tin Plate Company of India and the Tata Engineering & Locomotive Company (TELCO). Important among the public undertakings are : (a) Sindri Fertilizer Factory; (b) a heavy machine building plant at Hatia; (c) a heavy machine tool factory at Ranchi; (d) a steel plant at Bokaro; (e) an oil refinery at Barauni; (f) Indian Aluminium Company at Muri (Ranchi); (g) Indian Explosives Factory at Gomia; (h) National Coal Development Corporation at Ranchi and (i) a high tension insulation factory at Ranchi.

Silk is an important cottage industry in Bihar. Mulberry and eri silk-worms which produce several varieties of silk, are reared. Besides mulberry and eri, Bihar produces the largest yardage of tassar silk in India, which is produced in the forests of Chhota Nagpur. The sugar industry also occupies an important place in the rural economy of the State. For the development of small scale industries, the State Government has established the Bihar Industrial Development Corporation and the Bihar State Agro-Industrial Development Corporation.

MINERALS

Bihar is the most important mineral-bearing State in India, and accounts for about 41 per cent of its mineral production. In certain minerals, Bihar holds a key position. It produces 100 per cent of India's copper and apatite, 95 per cent of kyanite, more than 50 per cent of coal, mica, bauxite and about 40 per cent of iron ore. Chhota Nagpur plateau, which is the richest mineral belt in India, contains almost 80 per cent of India's known deposits of coal and 100 per cent of its coking coal. Bihar is also the largest producer of china-clay, chromite, sulphur, felspar, manganese ore, and fire-clay.

In order to find more deposits of base metals, the Government of India has selected part of the State to be surveyed under the "Operation Hardrock" (see page 16) looking especially for copper, lead, zinc and associated minerals.

POWER

With its large coal reserves, Bihar has considerable potential for bulk of thermal power. Before the First Five-Year Plan, the generation of power in Bihar was confined to the large industrial establishment and for civil use in a few urban centers. Considerable progress has been made in the three Five-Year Plans and the installed capacity has risen from 244 megawatts in 1950 to 767 megawatts in 1969. Because of increasing demand, the State plans to further increase its power generation distribution program. By the end of Fourth Plan, the state is expected to have a total installed generating capacity of about 1,395 megawatts.

Basic Data on Bihar

1969

Capital : Patna

Language : Hindi

LAND AREA	67,196 square miles	EDUCATION			
Districts	17	Literacy	18.4 per cent		
POPULATION	57.4 million	Universities	6		
Density	854 per square mile		<i>N u m b e r</i>		
	(Thousand of Hectares)	<i>Type</i>	<i>Insti- tutions</i>	<i>Enroll- ment</i>	<i>Tea- chers</i>
GEOGRAPHICAL AREA	17,401	Colleges for General education	136	33,681	N.A.
Area Cropped	10,908	Colleges for Physical education	1	126	N.A.
Forests	2,892	Colleges for Teacher Training Education	7	1,129	N.A.
Area put to non-agricultural uses	1,450	High/Higher Sec. Schools	2,007	436,405	22,625
Barren & Uncultivable	1,158	Middle/Senior Schools	6,387	660,599	34,417
Cultivable Waste	595	Primary Schools	42,83	3,806,088	70,976
Permanent pastures & grazing land, etc.	398	Physical education Schools	2	253	
POWER		Teacher Training Schools	111	20,285	
Installed Generating Capacity	767 MW	Handicapped Schools	12	419	
Per Capita Consumption	66 Kwh	HEALTH			
Villages & Towns electrified	6,685	Hospitals		138	
Tubewells and pump sets energized	49,528	Dispensaries		1,231	
INDUSTRY		Primary Health Centers		587	
Factories	14,136	Beds		16,911	
Persons employed	251,727	Doctors		10,399	
COPERATIVES		Nurses and Dais		5,725	
Societies	36,000				
Membership (million)	322				
LABOR					
Craftsmen Training Institutes	29				

SOURCES : i) Times of India Directory—1970.

ii) Techno-Economic Survey of Bihar.

PROJECTS LOCATED IN BIHAR



DEVELOPMENT LOAN PROJECTS

- Barauni Thermal Power Plant
- Chandrapura Thermal Power Station
- + Tata Engineering & Locomotive Co., Jamshedpur
- ▽ Patherdih Coal Washery, Dhanbad
- ▽ Dugda Coal Washery, Dhanbad

MAJOR TECHNICAL COOPERATION PROJECTS

- Agricultural Production
- Science Education Improvement
- National Productivity Council (Dhanbad, Jamshedpur, Patna and Ranchi)
- ▽ Soil Fertility & Fertilizer Use (Sehour)
- ▽ Animal Husbandry (Barauni)
- ▽ Dairy Development (Barauni)
- Multipurpose Secondary Education (Purki, Patna, Bhagalpur & Ranchi)
- Rural Institute (Birouli)
- Technical Education Institutes (Sindri and Dhanbad)
- Higher Technical Education (Jamshedpur)
- ▽ Aviation Ground Facilities (Gaya)
- Assistance to Indus. Res. & Technical Serv. Orgn. (Dhanbad)
- ★ Foodgrain Storage (Patna, Gaya, Saharsa, Muzaffarpur, Dhanbad, Dinapur, Darbhanga, Jamshedpur.)
- Craftsmen Training (Ranchi, Bokaro, Dhanbad, etc.)

LEGEND

- THERMAL POWER
- × IRRIGATION AND HYDEL POWER
- + LOCOMOTIVE
- ▽ INDUSTRIAL EXPANSION
- ★ FOODGRAIN STORAGE
- INSTITUTES & UNIVERSITIES
(Agricultural, education, technological and Research)
- ✓ OTHERS

Summary of USAID Assistance

1952-

(Figures in Thousands)

<i>US-GOI Projects and Activities</i>	<i>L O A N S</i>		<i>G R A N T S</i>	
	<i>Dollars</i>	<i>Rupees</i>	<i>Dollars</i>	<i>Rupees</i>
Confined to Bihar¹	84,996	201,100	17	
Chandrapura Thermal Power Station	39,697	166,000		
Barauni Thermal Power Plant	3,512	13,100		
Tata Engineering & Locomotive Company	25,390			
Patherdih Coal Washery	3,971			
Dugda-II Coal Washery	4,997			
Central Ropeway "F"	7,429			
McNally-Bird Engineering Ltd.		10,000		
Kumardhubi Fireclay & Silica Works Ltd.		12,000		
Survey of the Expansion of the Sindri Fertilizer Plant			17	
Countrywide²	2,469,821	3,769,580	283,073	3,074,085
Agriculture	10,845		54,946	29,436
Agricultural Production			3,890	16,583
Acquisition and Distribution of Fertilizers	8,854		20,118	
Soil Fertility and Fertilizer Use			1,029	194
Agricultural Extension			3,013	2,458
Community Development Program	1,991		11,518	
Foodgrain Storage			1,664	97
Crop Production			1,536	1,711
Dairy Development			994	239
Agricultural Education & Research			8,981	5,144
Animal Husbandry			964	1,065
Farmers' Organisation			275	396
Soil & Water Conservation			964	1,549

¹ See Annex I

² See Annex II

Benefiting Bihar

1970

(Figures in Thousands)

<i>US—GOI Projects and Activities</i>	<i>LOANS</i>		<i>GRANTS</i>	
	<i>Dollars</i>	<i>Rupees</i>	<i>Dollars</i>	<i>Rupees</i>
Education			17,085	42,322
Technical Education Institutes			4,481	3,886
Multipurpose Secondary Education			3,992	8,250
Teacher Training in Engineering Education			2,250	1,690
Rural Institutes			222	254
Science Education Improvement			6,140	28,242
Health	12,233		87,727	11,257
Medical Educator Training			1,751	2,023
Malaria Control & Eradication	9,533		80,773	1,733
Family Welfare Planning	2,700		5,203	7,501
Labor			1,130	1,597
Trades Training			661	
Labor Ministry Training			469	1,597
Commodity Imports	2,202,831		20,000	
Program Assistance—Loans	2,202,831			
Program Assistance—Grants			20,000	
Industry & Mining	14,388		59,794	8,625
Acquisition & Distribution of Iron and Steel	10,399		50,394	
Steel Training			1,225	575
National Productivity Council			3,337	7,898
Coal Industry Modernization			149	152
Industrial Technical Services			2,064	
Assistance to Industrial Research & Technical Service Organization	489		2,522	
Minerals Survey & Development			103	
Operation Hardrock	3,500			

Summary of USAID Assistance
Benefiting Bihar (continued)
 1952--1970

(Figures in Thousands)

<i>US-GOI Projects and Activities</i>	<i>L O A N S</i>		<i>G R A N T S</i>	
	<i>Dollars</i>	<i>Rupees</i>	<i>Dollars</i>	<i>Rupees</i>
Transportation	229,524		31,780	224
Railway Modernization	229,524		28,849	
Aviation Ground Facilities			2,879	88
Highways & Bridges			52	136
Power			2,694	1,436
Technical Services in Water & Power Development			1,076	488
Nuclear Engineering			1,618	948
PL 480 Rupee Assistance for Development Activities	3,769,580		7,917	2,979,188
River Valley Development	2,358,980		7,917	59,400
Technical Education Institutes				1,200
Higher Technical Education	265,700			165,600
Elementary Education	428,300			783,100
Medical Educator				74,000
Malaria Control & Eradication	194,600			851,500
Family Welfare Planning				84,690
Primary Health Centers	60,000			105,500
Smallpox Eradication	27,300			102,900
Foodgrain Storage	29,500			160,735
Craftsmen Training	235,200			394,563
National Highways	170,000			196,000

USAID assisted projects and activities confined to the State of Bihar

Projects and Activities

*U.S.
Inputs*

A. DEVELOPMENT LOANS

Chandrapura Thermal Power Station : To increase the electric generating capacity in the State of Bihar, the first stage of the plant consisting of two 140 megawatts of electric generating units was commissioned in 1965. The second stage consisting of one unit of 140 megawatts was commissioned in 1968.

The plant is located 175 air-miles northwest of Calcutta and about 25 miles west of Dhanbad railway station, in one of the most highly industrialized areas of India. It meets the demand for power of industries such as iron and steel, copper, cement, locomotives, chemicals, etc.

Barauni Thermal Power Plant : To finance the foreign exchange costs of the construction and placing into operation of two 15 MW thermal units at Barauni (about 70 miles east of Patna) on the Ganges River in the State of Bihar. These units were commissioned in 1963. The plant was designed to meet increased demand for electric power in the area.

Tata Engineering and Locomotive Company (TELCO) : These loans were provided to enable TELCO (a) expand truck manufacturing capacity from 12,000 vehicles per year to 18,000 (first stage) and to 24,000 (second stage) vehicles and (b) increase the indigenous content.

Although TELCO was the last to enter the Indian automobile manufacturing field, it now has successfully

USAID in FY 1964 provided two development loans totalling \$39,696,559 to finance the foreign exchange costs of the Chandrapura Thermal Power Station and a loan of Rs 166,000,000 from PL 480 funds for the local currency costs of the project.

USAID in FY 1960 authorized a loan of \$3,511,702 to finance the foreign exchange costs for the procurement of equipment. A loan of Rs 13,100,000 to meet the local currency costs of the project was also authorized from PL 480 funds.

USAID provided two loans in FY 1962 and FY 1964 totalling \$25,390,152 for the import of machinery, equipment and tools.

¹"FY" used in this booklet designates U.S. Fiscal Year, July 1 to following, June 30.

USAID assisted projects and activities

Projects and Activities

U.S. Inputs

achieved its rated capacity of 24,000 vehicles per year with indigenous content of the truck at about 99 per cent.

Patherdih Coal Washery: To finance the foreign exchange costs of constructing a coal washery plant at Patherdih in the Jharia coal-fields. The plant, run by Hindustan Steel Limited, treats coking coal drawn from 22 collieries in the Jharia fields. The washed coal is being used in the manufacture of steel. Construction and equipment installation of the plant was completed in 1965.

Central Ropeway "F": To finance the foreign exchange costs of constructing a plant and an aerial ropeway to extract and transport sand from reserves near the Damodar River to the Jharia coal-fields, a distance of about 15 miles. With the commissioning of the ropeway in FY 1969, the output in the Jharia coal-fields has gone up by 1.5 million tons per annum.

Dugda-II Coal Washery: To finance the foreign exchange costs for building a coal washery at Dugda with the rated capacity to wash 2.4 million tons per annum of raw coal. The washery, now in operation, is owned and operated by Hindustan Steel Limited (HSL-GOI corporation). The washed coal is being used by HSL's Rourkela steel plant.

The project is the second of three projected units of washeries at Dugda in the Jharia coal-fields. The first unit (Dugda stage I) was constructed with partial financing from the Export-Import Bank and is now in operation.

USAID in FY 1962 provided a development loan of \$3,971,414 in foreign exchange for the procurement of plant and equipment.

USAID in FY 1963 provided a loan of \$7,429,367 to finance the importation and installation of equipment. The Interstate Equipment Corporation, Elizabeth, New Jersey was selected by the Coal Board of the GOI to carry out the project.

USAID in FY 1963 authorized a loan of \$4,996,883 in foreign exchange for the engineering services and import of plant machinery and equipment.

confined to the State of Bihar (continued)

Projects and Activities

U.S. Inputs

B. COOLEY LOANS*

McNally-Bird Engineering Co. Ltd., Kumardhubi : To finance a plant for the manufacture of material handling equipment, crushers, cement plant equipment and coal washeries. The company is collaborating with McNally Pittsburgh Manufacturing Corporation, Pittsburgh.

USAID made available in FY 1963 and FY 1965 two loans of Rs 5,000,000 each from PL 480 funds for meeting the local costs of the project.

Kumardhubi Fireclay & Silica Works Ltd., Kumardhubi : To assist the company to modernize its plant, machinery and equipment for the manufacture of specialized refractories. The company is affiliated with A.O. Green Refractories Co., Mexico, Missouri.

USAID in FY 1970 authorized a loan of Rs 12,000,000 to the company from PL 480 Cooley funds for meeting the local costs of the project.

C. TECHNICAL ASSISTANCE

Completed Activity

Survey of the Expansion of the Sindri Fertilizer Plant (FY 1955 - FY 1958) : To assist in the survey of fertilizer production and utilization of coke-over-gas.

USAID provided the services of consultants to survey the utilization of coke-over-gas and suggest ways and means to improve production and marketing facilities. In addition, USAID financed the training of three participants for studying urea and ammonium nitrate manufacturing processes and facilities. Total assistance : \$17,000.

*"Cooley Loans" are local currency loans of U.S. owned rupees (generated from PL 480 sales agreements) made to American firms or their subsidiaries operating in India. The loans may also be made to Indian firms in which there is an American equity interest or which have operations which expand the market for/or increase the consumption of U.S. agricultural products.

Countrywide projects and activities

A. CURRENT ACTIVITIES

PL 480 TITLE II PROGRAM

The Title II (formerly Title III) food donation program is a "people-to-people" program through which U.S. citizens express their humanitarian concern for and share their food abundance with needy people and school children. The program is carried out by distributing agencies, i. e., inter-governmental organizations and U. S. non-profit voluntary agencies.

During FY 1970, gift commodities such as non-fat dry milk, bulgur, corn soya milk (CSM), whole wheat, wheat flour and vegetable oil, totalling 489,500 metric tons were allocated for distribution to approximately 17.2 million beneficiaries in the country.

In Bihar during FY 1970, gift commodities were provided to 2,748,300 people through 23,875 distribution centers and American voluntary agencies. The breakdown of the number of people who benefited from the program by category and voluntary agencies is indicated below :

NUMBER OF BENEFICIARIES

<i>Name of Agency</i>	<i>Mat. and pre-school</i>	<i>School Feed- ing</i>	<i>School Hostels</i>	<i>Other Children</i>	<i>Economic Develop- ment</i>	<i>Insti- tutional Feed- ing</i>	<i>Health cases</i>	<i>Educa- tional Develop- ment</i>	<i>Total</i>
CARE	830,000	1,540,000							2,370,000
CRS	14,200	33,700		12,100	210,700	300	4,600		275,600
CWS/LWR	2,100	12,700	3,600	1,500	79,200	2,400	1,000	200	102,700
TOTAL :	846,300	1,586,400	3,600	13,600	289,900	2,700	5,600	200	2,748,300

CARE—Cooperative for American Relief Everywhere; CRS—Catholic Relief Services;
CWS—Church World Services; LWR—Lutheran World Relief.

benefiting the State of Bihar

Projects and Activities with Countrywide Objectives

State Participation and Benefits

Agriculture

Agricultural Production (FY 1967—): To strengthen the link among the field, research facilities, and the state department of agriculture, to facilitate solution of problems as they arise, and to insure the rapid communication of research results back to the cultivators. The program is focused particularly on areas where high yielding variety programs are being undertaken.

In each state where this project is implemented, a team consisting of four to six U.S. technicians is provided in fields such as seed production, plant protection, soil fertility, water use management and drainage, agricultural implements, extension training, and agricultural information. This project also includes non-degree training in the United States for up to five participants from each state. Total assistance under this project through June 30, 1970 was \$3,890,000 and Rs 16,583,200.

In Bihar, the department of agriculture is responsible for coordinating this activity (there is no Agricultural University). Through a contract with the University of Missouri, USAID has provided a team of four specialists to work with the Department of Agriculture. Each American Advisor has two Indian counterparts from the Department of Agriculture, one from the research phase (usually from the Agricultural College) and the other from the extension phase. These three specialists in the particular discipline constitute a Field Problem Unit (FPU).

The function of the FPU is to orient agricultural research in its particular area toward solving actual field problems and to disseminate the results to the farmers. Activities of these FPUs have included: developing an insect surveillance method for a demonstration area (which now covers the entire state); conducting plant protection seminars and training Indian personnel; developing a program to improve the quantity and quality of seeds and a program for improved rural storage of seeds; and instituting an Agricultural Information Council to coordinate extension information activities.

Countrywide projects and activities

Projects and Activities with Countrywide Objectives

State Participation and Benefits

Agricultural Production (continued)

The project also provided U.S. training for five state agricultural officials each year. This activity began in Bihar in FY 1967 and a total of \$355,000 and Rs 1,390,800 has been obligated through June 30, 1970.

Education

Science Education Improvement (FY 1963 —): To improve the teaching of science, mathematics and technology by training Indian teachers at the higher secondary and college level in the most recent developments in their specialities and in modern teaching methods. From 1963 through 1970, a total of 891 summer institutes were conducted in biology, physics, chemistry, mathematics, engineering and polytechnics for approximately 30,000 teachers and professors. A total of 1,078 U.S. consultants participated in these summer sessions. Total assistance through June 30, 1970 was \$6,140,000 and Rs 28,241,600. U.S. technical assistance is being provided through the National Science Foundation, an agency of the U.S. Government.

Through FY 1970, 34 summer institutes have been held in Bihar and approximately 1,400 teachers and professors have received training. In addition, USAID provided books and science education equipment to the participants. Currently, the National Science Foundation (NSF) is helping the State Government with its program of curricular reform and workshops for secondary school science teachers.

Health

Malaria Control and Eradication (FY 1953 - FY 1970): To assist the GOI in its National Malaria Control and Eradication Program. Prior to 1953, malaria was considered to be India's greatest health scourge. Every year there were about 75 million cases resulting in 750,000 deaths, with substantial increases during epidemic years. After five years of concentrated effort in the Control Program, there were an estimated twenty million cases and approximately 200,000 deaths annually. In 1958 the program was converted to "eradication". By June 30, 1969, 69 units with a population of 91 million had

The State of Bihar participates in the national program of malaria control and eradication. As of June 30, 1969, 15 million people had passed into the consolidation phase and 30 million people had been approved for the maintenance phase. The remaining people still were in the attack phase of the program.

benefiting the State of Bihar (continued)

Projects and Activities with Countrywide Objectives

State Participation and Benefits

passed to the consolidation phase; and 217 units with 287 million people had been approved for the maintenance phase. Thus there were 107 units with 136 million people in the attack phase of the program. The annual number of reported cases had been reduced to less than 300,000.

Since 1953, the United States Agency for International Development has financed the procurement of several thousand tons of DDT, malaria drugs, spray equipment, vehicles, and has provided the services of technicians. The project has also provided training to 32 key National Malaria Eradication and Control program personnel. Total assistance through June 30, 1970 was \$90,306,000 (grant \$ 80,773,000 and loan \$9,533,000) and Rs 1,733,000. In addition, the GOI has allocated from PL 480 funds Rs 1,046,100,000 (USAID grant to GOI of Rs 851,500,000 and loan Rs 194,600,000) to meet the local costs of the project. The above figures do not include the imports made under the USAID Non-Project Loans estimated at \$13 million for DDT and anti-malaria drugs.

Family Welfare Planning (FY 1966 —): To assist the GOI to achieve its declared goal of reducing India's annual rate of population increase from an estimated 2.5 per cent to 1.5 per cent by 1975.

Bihar is one of the states which is participating in this countrywide program of family planning.

Although the Government of India was the first in the world to adopt a comprehensive national family planning policy as a part of its developmental plans in 1952, the program has gathered real momentum only since 1966.

Since 1966, USAID has financed the procurement of one million cycles of oral contraceptives, 170 million

Countrywide projects and activities

Projects and Activities with Countrywide Objectives

State Participation and Benefits

condoms, and a large quantity of audio-visual equipment and training aids. In addition, USAID has supplied technical advisory services and participants training in the United States and other countries. Total grant assistance through June 30, 1970 was \$5,203,000 and Rs 7,501,200.

A loan of \$2.7 million in foreign exchange has also been made to the Government of India to meet the cost of imported components for vehicles required for the project. The USAID has further agreed to provide a grant of Rs 60,000,000 out of PL 480 funds for the procurement initially of 1,540 vehicles during the first year of the Fourth Five-Year Plan period, for capital expenditures for the Central and State Health Transport Organizations, and for operation and routine maintenance for vehicles.

A grant of Rs 84,690,000 from PL 480 funds has already been made available to the GOI for family planning activities. This grant is now being used for increasing the effectiveness of the program including experimental and innovative activities in research, training, motivation and mass communication.

In addition to the above grants and loans, the U.S. has made another program assistance grant of \$20 million in June 1970 to the Government of India for procurement of commodities; this grant will enable the GOI to increase its budgetary allocation for family planning activities in India.

INDUSTRY AND MINING

Operation Hardrock (FY 1965 —): To conduct airborne geophysical surveys over 90,000 linear miles in the States of Bihar, Andhra Pradesh and Rajasthan, and to drill at selected points in order to find exploit-

In the state of Bihar, the airborne geophysical flights were completed in FY 1968. Using the data developed, geological reconnaissance

benefiting the State of Bihar (continued)

Projects and Activities with Countrywide Objectives

State Participation and Benefits

able deposits of base metals, such as copper, lead, zinc, tin and nickel.

In order to discover the base metals in these states, the United States authorized a Development Loan of \$3,500,000 to finance : 1) the services of a U.S. contractor to conduct airborne geophysical surveys, ground follow-up with diamond drilling and 2) the purchase of necessary equipment. Training of Indian scientists in India is an integral part of the project. The project is scheduled to terminate in June 1971.

Commodity Imports Under Non-Project Loans : To assist the Government of India to procure from the United States essential raw materials, machinery and spare parts required for the growth of India's agriculture and industry. Since 1958, the USAID has made available to India \$2,202,831,382 as non-project loans through the Government of India. Industrial commodities imported under the various loans included chemicals, non-ferrous metals, specialized components such as roller bearings and spares for industrial and construction equipment. Some portion of these loans was used for the import of DDT and anti-malaria drugs.

Prior to 1963, these non-project loans were used mainly for industry and transport. Since that time, however, these loans have been used increasingly for agricultural inputs, primarily fertilizers. Almost 50 per cent of the recently authorized loans have been earmarked for the agricultural sector. None of these loans has been used for the import of consumer goods or luxury items.

and field inspection were then carried out in Ranchi area. Diamond drilling to test potential mineral deposits is still underway and substantial footages of copper ore have been intersected.

The agricultural and industrial sectors in Bihar benefit from these general commodity import loans.

Countrywide projects and activities

*Projects and Activities with
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B. COMPLETED ACTIVITIES

Agriculture

Acquisition and Distribution of Fertilizers (FY 1952 - FY 1958): To provide fertilizer to promote an increase in agricultural production. At the start of this project, the production of chemical fertilizers was completely inadequate and India was almost entirely dependent on imports. It was considered important to test new types of fertilizers on Indian soils and to popularize them, if found suitable.

Under the project, approximately 262,350 tons of fertilizer were made available to the GOI to be sold to the Indian farmers through the state governments. A portion of the supply was made available to the states for demonstration purpose.

Total USAID assistance through FY 1958: grant \$20,118,000 and loan \$8,854,000. These figures do not include the allocations made for the import of fertilizer under USAID Non-Project Loans.

Soil Fertility and Fertilizer Use (FY 1952 - FY 1961): To increase agricultural production through the distribution and sale of fertilizers; to establish soil testing laboratories throughout the country; to assist the Central and state governments in training Indian personnel. Total assistance: \$1,029,000 and Rs 194,000.

Agricultural Extension (FY 1951 - FY 1967): To assist the Central and state governments in training an efficient corps of extension workers, planning and developing an effective extension program and implementing the program in these fields. With USAID assistance, the GOI has established 100 extension and

Bihar was one of the states which participated in this countrywide program for increasing agricultural production.

Equipment was provided for the establishment of a soil testing laboratory at Sehour.

USAID provided the services of three technicians for a total of 69 man-months and also financed the training of four participants for a total of 32 man-months.

benefiting the State of Bihar (continued)

<i>Projects and Activities with Countrywide Objectives</i>	<i>State Participation and Benefits</i>
44 home science training centers to train Village Level Workers. Total assistance: \$3,013,000 and Rs 2,458,000.	
Community Development Program (FY 1952 - FY 1959): To develop the material and human resources prerequisite for greater agricultural production through rural community development blocks. Agricultural extension centers, panchayats and cooperatives, village schools, community centers and social education programs were initiated in many rural areas. Advisory services were provided as well as substantial commodity aid including jeeps, audio-visual materials and agricultural implements. Total assistance: grant \$11,518,000 and loan \$1,991,000.	Assistance was provided to the State Government for the development of rural community development blocks, extension centers and village schools. In addition, USAID financed training of one participant for a total of six months.
Foodgrain Storage (FY 1955 - FY 1966): To demonstrate efficient grain storage through construction of modern grain elevators and to determine the most economical type of grain handling facilities for Indian conditions. Total assistance: \$1,664,000 and Rs 97,000. In addition, the GOI provided from PL 480 funds Rs 190,235,000 (grant Rs 160,735,000 and loan Rs 29,500,000) for the construction of over 100 godowns.	Construction of ten godowns with a total capacity of 223,000 tons (Patna 22,500 tons; Saharsa 11,200 tons; Gaya 51,000 tons; Dhanbad 10,000 tons; Muzaffarpur 7,500 tons; Mokameh 43,000 tons; Kathiar 10,000 tons; Darbhanga 5,000 tons; Jamshedpur 10,000 tons and Dina- pur 52,000 tons) was financed under this project. In addition, USAID financed the training of one participant for a total of six months.
Crop Production (FY 1955 - FY 1967): To assist the GOI to increase foodgrain production by promoting and demonstrating the use of high yielding hybrid seeds of adapted varieties, establishing seed production control and certification standards, controlling fertilizer quality and expanding the use of fertilizers. Assistance included providing technician services, parti-	One seed testing laboratory costing \$3,834 was established at Patna and provided equipment worth \$4,896 to the State Government. USAID also financed the training of 20 participants in the fields of agricultural machinery utilization, fertilizer mar-

Countrywide projects and activities

Projects and Activities with Countrywide Objectives

State Participation and Benefits

participant training and commodities, primarily for seed production and seed testing laboratories. Total assistance : \$1,536,000 and Rs 1,711,000.

Dairy Development (FY 1955 - FY 1962) : To assist the GOI in its dairy development program by providing technical services and essential equipment. Total assistance : \$994,000 and Rs 239,000. In addition, the GOI made available Rs 40,700,000 as a grant from PL 480 funds for the construction and development of 15 milk and milk product schemes.

Agricultural Education and Research (FY 1955 - FY 1963) : To strengthen and expand agricultural education and research in about 80 colleges and institutions throughout India by providing commodity support, technical advisory services and participant training at a total cost of \$8,981,000 and Rs 5,144,000.

Animal Husbandry (FY 1955 - FY 1967) : To assist the Central and state governments in poultry and livestock development and marketing by training Indian participants and providing demonstration and training equipment. Total assistance : \$964,000 and Rs 1,065,000.

Farmers' Organizations (FY 1956 - FY 1961) : To increase agricultural production through the establishment of national, state and local farmers' organizations capable of providing agricultural information to farmers. A Farmers' Forum was established. United States assistance was directed towards strengthening and expanding the Forum's leadership. Total assistance : \$275,000 and Rs 396,000.

keting and distribution in the United States for a total of 90 man-months.

The Rural Creamery at Barauni received equipment worth \$3,650 and also financed the training of two participants in the United States for a total of 27 man-months. In addition, Barauni Creamery was assisted with Rs 2,000,000 from PL 480 funds.

USAID provided the services of two technicians for a total of 72 man-months to the two agricultural colleges at Sehour and Ranchi and also financed the training of 20 participants from the state for a total of 280 man-months. In addition, USAID provided commodities worth \$67,000 to these institutions.

USAID financed the training of three participants for a total of 24 man-months in the United States.

A four-month tour of the United States and other countries was provided for seven Bihar farm leaders and a limited quantity of training equipment was supplied to the state government.

benefiting the State of Bihar (continued)

*Projects and Activities with
Countrywide Objectives**State Participation
and Benefits*

Soil and Water Conservation (FY 1959 - FY 1967) : To assist the GOI to increase agricultural production through effective soil and water management practices, to train Indian soil and water conservation technicians from the Union and state governments, and to conduct pilot projects. Total assistance : \$964,000 and Rs 1,549,000. In addition, the GOI allocated Rs 145,829,000 (grant Rs 100,829,000 and loan Rs 45,000,000) from PL 480 funds for this project.

USAID financed the training of six participants from Bihar for a total of 26 man-months in the United States.

Education

Technical Education Institutes (FY 1953 - FY 1967) : To assist in improving teaching methods in technical education. Through contracts with the Universities of Illinois, Wisconsin and Michigan State, USAID provided U.S. professors, participant training and commodities. Total assistance: \$4,481,000 and Rs 3,886,000. The GOI allocated a grant of Rs 1,200,000 from PL 480 funds to purchase computer equipment under the project.

USAID financed the services of three technicians for a total of 60 man-months and 110 man-months of U.S. training to nine state's participants. In addition, scientific equipment and training materials costing \$41,000 were provided to Bihar Institute of Technology, Sindri and to Indian School of Mines and Geology, Dhanbad.

Multipurpose Secondary Education (FY 1956 -FY 1969) : To help reorganize and improve secondary education in India. The first phase established 54 extension training centers for secondary school teachers. The second phase emphasized vocational education in the multipurpose secondary schools. The third phase from FY 1964 emphasized the development of four regional teacher training colleges with attached demonstration schools. Total assistance : \$3,992,000 and Rs 8,250,000.

USAID under the first phase provided \$62,780 worth of books and equipment to the four extension training centers, one each at Purki, Patna, Bhagalpur and Ranchi. Under the second phase, \$5,053 worth of equipment was provided to the state's two multipurpose secondary schools (at Pusa and the Sukhdeo Academy at Ekanagar Sarai). In its third phase, the project financed the training of one participant for about 5½ months.

Countrywide projects and activities

Projects and Activities with Countrywide Objectives

State Participation and Benefits

Teacher Training in Engineering Education (FY 1958 - FY 1961): To assist the GOI to improve the facilities and quality of engineering education. Under a four-year program, USAID provided an average of 18 months training to each of 299 Indian engineers. Total assistance : \$2,250,000 and Rs 1,690,000.

Twenty-five engineers from the state of Bihar received training in the United States for a total of 454 man-months.

Rural Institutes (FY 1957 - FY 1961): To support the GOI's rural education program, the USAID provided technical services, participant training in the United States and instructional materials and equipment to 11 rural institutes in India. Specialization was offered in rural social services, rural extension services, applied agricultural training and rural engineering education. Total assistance : \$222,000 and Rs 254,000.

USAID financed the training of three participants for a total of 34 man-months.

Health

Medical Educator Training (FY 1958 - FY 1967): To improve the quality of medical education by providing technicians, participant training and commodity support. Total assistance : \$1,751,000 and Rs 2,023,000. In addition, the GOI allocated Rs 74,000,000 from PL 480 funds to improve medical education in India.

USAID financed the training of four participants from the state for a total of 42 man-months in the United States.

Labor

Trades Training (FY 1955 - FY 1959): To assist the Ministry of Labor to expand and upgrade facilities in basic trades and crafts for pre-employed youth. Total assistance : \$661,000.

USIAD provided equipment to the state's 29 industrial training institutes including Bhagalpur, Dhanbad, Ranchi, Gaya and Hazaribagh.

Labor Ministry Training (FY 1960 - FY 1969): To improve the services provided by the Indian Central and State Ministries of Labor in the fields of man-power research and analysis, labor statistics, employment

USAID financed the training of nine participants in the United States for a total of 57 man-months. In addition, under a related project, titled

benefiting the State of Bihar (continued)

Projects and Activities with Countrywide Objectives

State Participation and Benefits

services, industrial skill improvement, conciliation and mediation and labor law administration. Total assistance under this project was \$469,000 and Rs 1,597,000 including \$352,000 for participant training.

Trade Union Development, two additional participants from Bihar were sent for training in the United States for a total of 12 months.

Industry

Acquisition and Distribution of Iron and Steel (FY 1952 - FY 1958) : The objectives of the project were : (1) to help increase food and agricultural production by making available to farmers improved agricultural implements such as steel-point ploughs, spike tooth harrows, steel cart-tires, irrigation devices, etc., (2) to make steel available for the replacement, and rehabilitation of railways and (3) to stimulate general industrial activity in the country.

Bihar was one of the states which benefited from this country-wide program for increasing agricultural and industrial production.

Approximately 459,300 tons of steel and steel products were procured and distributed to several Indian manufacturers and state governments. Total USAID assistance through FY 1958 was : grant \$50,394,000 and loan \$10,399,000. These figures do not include the allocation of over \$85 million for the import of iron and steel under Non-Project AID Loans.

Steel Training (FY 1961 - FY 1965) : To train about 300 Indian engineers and technicians in the United States in various aspects of steel production, under the "INSTEP" (Indian Steel Training and Education Program), jointly sponsored by the Ford Foundation, USAID and the Government of India; and to assist the Hindustan Steel Limited (HSL), a public sector undertaking, to improve the operating skills through the development of a comprehensive inplant training program for personnel at all levels required to man three of the Government owned steel plants in India—

22 engineers from the state received training in the United States for an average of 8-10 months each. It is significant to note that most of the participants trained are currently employed at the HSL headquarters at Ranchi (Bihar).

Countrywide projects and activities

Projects and Activities with Countrywide Objectives

State Participation and Benefits

Rourkela Steel Plant, Durgapur Steel Plant and the Alloy Steel Plant at Durgapur.

Under a USAID—financed contract with the Carnegie Institute of Technology, a team of six U.S. technicians was assigned to the steel plants for about 10 man-years. Commodities, such as books, films, filmstrips and technical periodicals worth about \$13,000 were provided to the four training institutions of Hindustan Steel Limited at Ranchi, Rourkela, Durgapur and the Alloy Steel Plant. Total assistance : \$1,225,000 and Rs 575,000.

National Productivity Council (FY 1959 - FY 1966) :
To assist the GOI through the National Productivity Council to establish and operate a national program for increasing industrial efficiency. USAID provided training facilities for 300 Indians and seven-week observation tours in the United States and elsewhere for 43 productivity teams with six to seven members each. Operating through the National Productivity Council, U.S. technicians organized and conducted training courses, seminars and demonstration workshops within India. Total assistance : \$3,337,000 and Rs 7,898,000.

Coal Industry Modernization (FY 1958 - FY 1960) :
To help India improve coal mining efficiency, increase coal production and bring a new lignite mining development into efficient operation. The U.S. provided training for Indian personnel, advisor and engineering services of U.S. experts. Total assistance : \$149,000 and Rs 152,000.

Industrial Technical Services (FY 1954 - FY 1958) :
To raise the level of industrial production, training in productivity analysis was given to thirty-eight Indian

In Bihar at Dalmianagar, Dhanbad, Ranchi, Jamshedpur and Patna, the U.S. advisors conducted a series of training courses in which a number of Indian industrial technicians and managers participated. In addition, USAID financed the training of 33 participants from state for a total of 162 man-months and also a seven-week observation tours of the United States and other countries for 26 participants.

USAID financed the training of 9 participants from the state for a total of 41 months in the United States.

USAID financed the training of three participants from the state for a total of 18 months in the United States.

benefiting the State of Bihar (continued)

*Projects and Activities with
Countrywide Objectives**State Participation
and Benefits*

participants, thirty-three U.S. technicians advised various Indian industries and agencies and commodities worth \$141,000 were supplied. Total assistance : \$2,064,000.

Assistance to Industrial Research and Technical Service Organization (FY 1954 - FY 1957) : To provide technical assistance in strengthening research organizations and technical services departments concerned with the tasks of increasing industrial production. Thirty-seven participants were trained in the United States in various fields and commodities worth \$2,945,000 were also provided to various research centers in India. Total assistance : \$3,011,000 (grant \$2,522,000 and loan \$489,000).

Minerals Survey & Development (FY 1951 - FY 1955) : To provide technical assistance and equipment for mineral surveys and development of petroleum engineering. The United States provided the services of three Minerals Geologists for a period of two years each and one Structural Geologist for two and one half months. In addition, USAID financed the training of Indian participants. Total assistance : \$103,000.

Transportation

Railway Modernization (FY 1953 - FY 1965) : To provide foreign exchange for the procurement of structural steel, locomotives, rolling stock components, centralized traffic, electric and signalling equipment, machinery and tools required to manufacture and to carry out a program of modernization and expansion in order to increase the efficiency and volume of passenger and commodity transport operation.

USAID provided \$595,000 to finance construction and installation of one coal gasification plant for fuel research center at Jealgora near Dhanbad (Bihar). The plant has been in operation since 1964.

USAID financed the training of three participants for a total of 13 months in the United States.

Bihar was one of the states which participated in this countrywide program of railway expansion and modernization. Two participants from the state went abroad for USAID sponsored training program in the United States for a total of 10 months.

Countrywide projects and activities

Projects and Activities with Countrywide Objectives

State Participation and Benefits

Since 1953, USAID has provided massive assistance to Indian railways totalling \$258,373,000 (loan \$229,524,000 and grant \$28,849,000) to enable it to carry out its planned program of modernization and expansion. In addition, the U.S. Export-Import Bank has advanced to the Indian railways a loan of \$48,750,000 for the same purpose. The USAID assistance included advanced training facilities in the United States for approximately 132 Indian railway officials from the high and middle levels of management.

Aviation Ground Facilities (FY 1955 - FY 1962) : To assist in expanding and modernizing aviation ground facilities and aeronautical communication services in order to provide all-weather aid to high altitude aircraft. Total assistance : \$2,879,000 and Rs 88,000.

Highways and Bridges (FY 1959 - FY 1961) : To assist the GOI in road planning and development. Specialized training was provided to sixteen Indian participants. Total assistance: \$52,000 and Rs 136,000.

Power

Technical Services in Water and Power Development (FY 1952 - FY 1962) : To assist the GOI in the development of its multi-purpose river basin program, irrigation flood control, inland waterway navigation, and electric and power generating and transmission. Thirty-six U.S. technicians and consultants provided 41 man-years of services, 108 Indian engineers received training in the United States, and technical books and radio gauge equipment were provided under the project. Total assistance: \$1,076,000 and Rs 488,000.

Under the project a Very High Frequency Omni-Directional Radio Range (VOR) was installed at the Gaya airport for safe aircraft movement in all-weather conditions.

USAID financed the training of four participants from the state for a total of 31 months in the United States:

USAID financed the training of 10 participants from Bihar for a total of 80 man-months.

benefiting the State of Bihar (continued)

Projects and Activities with Countrywide Objectives

State Participation and Benefits

Nuclear Engineering (FY 1955 - FY 1969) : To assist the GOI in developing India's atomic energy resources and in implementing a program of research and utilization of atomic energy for peaceful purposes, including power development; and to provide U.S. training for Indian scientists in advanced techniques and practices in various fields of nuclear engineering. Total assistance : \$956,000 and Rs 948,000.

USAID provided training facilities for six participants from the state for a total of 44 man-months in the United States.

USAID under another project (Nuclear Research), provided equipment and supplies worth \$662,000 to the Atomic Energy Establishment.

C. PL 480 Rupee Assistance for Development Activities

River Valley Development (FY 1955 - FY 1966) : To construct 12 multi-purpose river valley projects in various states which will provide facilities for hydro-electric power generation, irrigation and flood control. The combined electric generating capacity of these projects, when completed will be about 2,000 megawatts and will irrigate about 12 million acres of land. USAID financed heavy earth moving equipment valued at \$7,917,000. The GOI allocated from PL 480 funds Rs 2,418,380,000 (loan Rs 2,358,980,000 and grant Rs 59,400,000) for the execution of these projects.

Two components of this project are in Bihar State, Damodar Valley Corporation (DVC) and Kosi.

Damodar Valley Corporation, an autonomous corporation, patterned on the Tennessee Valley Authority (TVA) of the U.S. was created in 1948 for developing the Damodar Valley area as a whole and executing schemes of flood control, irrigation, power generation, and transmission, navigation all-the-year round, afforestation and soil erosion. The DVC has built four flood control dams, a barrage at Durgapur, and a large irrigation canal system but electric power is now its most important activity. Operating three hydro-electric plants, three thermal power plants and an extensive transmission

Countrywide projects and activities

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and Benefits*

River Valley Development (continued)

system, DVC is India's largest autonomous electric power agency. (The total installed capacity of the thermal and hydroelectric stations will be 1,279 megawatts by 1973.)

The Kosi Project is an irrigation scheme whose main diversion structure lies across the India-Nepal border, with its right abutment actually in Nepal. The project when completed will irrigate about 2.8 million acres of land. The Araria and Murligani branches of the eastern canal system of the project were inaugurated in July 1964, to irrigate about 200,000 acres of land in northern Bihar.

Rs 113,600,000 for Damodar Valley Corporation and Rs 368,200,000 for Kosi project have been allocated from PL 480 funds.

Higher Technical Education : To develop regional engineering colleges and other facilities for higher technical education. As of June 30, 1970, the GOI had allocated Rs 431,300,000 from PL 480 funds (grant Rs 165,600,000 and loan Rs 265,700,000) for their support.

The Engineering College at Jamshedpur received assistance.

Elementary Education : In support of its elementary education program throughout the country, the GOI has allocated from PL 480 funds a total of Rs 1,211,400,000 (grant Rs. 783,100,000 and loan Rs. 428,300,000).

Assistance has been provided for development of elementary education in Bihar.

benefiting the State of Bihar

Projects and Activities with Countrywide Objectives

State Participation and Benefits

Primary Health Centers: The GOI is establishing primary health centers throughout the country, each to serve about 60,000 persons. Rs 165,500,000 has been allocated from PL 480 funds (grant Rs 105,500,000 and loan Rs 60,000,000) for their establishment through June 30, 1970.

Smallpox Eradication: Rs 130,200,000 from PL 480 funds (grant Rs 102,900,000 and loan Rs 27,300,000) were allocated to the countrywide smallpox eradication program.

Craftsmen Training: To expand facilities for the training of craftsmen through seven central and 357 Industrial Training Institutes. As of June 30, 1970, the GOI had allocated from PL 480 funds Rs 629,763,000 (grant Rs 394,563,000 and loan Rs 235,200,000).

National Highways: For its countrywide program of expanding and strengthening roads and bridges, the GOI allocated Rs 366,000,000 from PL 480 funds (loans Rs 170,000,000 and grant Rs 196,000,000).

As of June 30, 1970, 578 primary health centers were functioning in Bihar.

The program began to operate in Bihar in 1962, and since that time, steady progress has been made. As of June 1969, 89,651,240 revaccinations and 11,679,694 primary vaccinations had been performed.

Twenty-nine Industrial Training Institutes including those at Bhagalpur, Dhanbad, Gaya and Ranchi have received assistance.

Assistance has been provided to the State Government for the construction of new bridges and strengthening of existing roads.

BIHAR

251 PARTICIPANTS

AGRICULTURE

EXTENSION	10
LAND AND WATER RESOURCES	6
CROP PRODUCTION	5
LIVESTOCK	5
FERTILIZER	17
AGR. PRODUCTION	2
AGR. UNIV. DEV.	20
AGR. CONTRACT	1
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EDUCATION 66

HEALTH 37

HEALTH	6
NURSING	1
FAMILY PLANNING	1
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MANAGEMENT 39

PERSONNEL	8
INDUSTRIAL	28
GENERAL	3
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ENGINEERING 28

INDUSTRIAL	22
NUCLEAR	6
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LABOR 11

TRANSPORTATION 7

POWER & WATER DEV. 11

MINING 19

STEEL (Instep) 25

251

RETURNED PARTICIPANTS

1951 THRU December 69



