No. 19

FACT SHEET: United States economic assistance to India

JUNE 1951 – JANUARY 1969

This Fact Sheet supersedes the issue of July 22, 1968. During the intervening period the United States extended additional aid to India totalling $430.5 million [Rs. 322.88 crores].

The total of U.S. aid to India now stands at $8,994.1 million [Rs. 6,745.58 crores].

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U.S. Economic Assistance to India
June 1951 - January 1969

		Dollars	Rupee equivalent at current rate of exchange
		(*millions*)	(*crores*)
1.	USAID Mission's Technical Cooperation Programme:		
	(a) Development Grants (not repayable)	414.1	310.58
	(b) Loans (repayable in rupees or dollars)	154.1	115.58
2.	USAID Development Loans:		
	(a) Repayable in dollars	2,361.2	1,770.90
	(b) Repayable in rupees	528.7	396.53
3.	Public Law 480, Title I (grants, and loans repayable in rupees)	4,388.3	—*
4.	Public Law 480, Title II (donations; not repayable)	494.2	370.65
5.	Emergency Flood & Famine Relief grants (not repayable)	5.5	4.13
6.	U.S. Export-Import Bank loans (repayable in dollars)	458.3	343.70
7.	Wheat Loan of 1951 (repayable in dollars)	189.7	142.28
	Total	8,994.1	6,745.58

Categories of Aid

		Dollars (*million*)	% of total
1.	Grants (not repayable)	1,752.7	19.5
2.	Loans (repayable in dollars)	3,009.2	33.4
3.	Loans repayable in rupees convertible to dollars at the option of the U.S. Government	161.7	1.8
4.	Local currency repayments (these include loans repayable in rupees or dollars at the option of the Government of India; the Cooley Fund for loans to private enterprise; and amounts under PL-480, Title I, agreements reserved for U.S. Government uses)	4,070.5	45.3
	Total	8,994.1	100.0

*It is estimated that PL-480 deposits under existing agreements will total approximately Rs. 2,365 crores. (Please see page 4.)

U.S. Economic Assistance to India

United States economic assistance to India commenced in 1951 with a loan of $189.7 million [Rs. 142.28 crores] to purchase two million tons of wheat. Since then the United States has extended support to many aspects of India's development programme. U.S. aid through January 1969 totals $8,994.1 million [Rs. 6,745.58 crores], and consists of both grants and loans.

The U.S. Government presently extends aid to India through three agencies: the United States Agency for International Development [USAID]; the Public Law 480 [Food for Peace] programme; and the U.S. Export-Import Bank.

USAID : Created November 3, 1961, this Agency is in charge of activities previously administered by the International Cooperation Administration, which was represented in India by the Technical Cooperation Mission [TCM]; the Development Loan Fund; the Public Law 480 programme in its relation with other countries; and other staff and related functions. A USAID Mission functions in New Delhi. Both grants and loans are extended by the Agency.

Dollar Grants

Technical cooperation: For the Technical Cooperation Programme, USAID extends grants and, at the request of the Government of India, makes available the services of American specialists. Support has been extended to malaria and smallpox eradication, agricultural and technological universities, the development of high-yielding cereals, dairy development, the training of craftsmen, community development and many other nation-building activities.

(Please see pages 6 to 19 for details of U.S. aid to different sectors of Indian development.)

Amount: Dollar grants since the beginning of the programme total $414.1 million [Rs. 310.58 crores].

U.S. specialists: Since 1951, 2,715 American specialists have served in India, sharing their skills and experience with their Indian colleagues. The figure includes 267 who are presently in the country. The specialists, whose services are made available at the

request of the Government of India, belong to many different disciplines such as agricultural education, agronomy, engineering, entomology, family planning, labour relations, malaria eradication, mineral exploration, mining, nutrition, plant breeding, public administration, science education, soil and water management, technological education, and transportation. They work with government departments, educational institutions, and other organizations.

Indian participants: Another important aid activity concerns the provision of advanced training in the United States to Indian officials, teachers, engineers, health specialists and other personnel and facilitating visits by Indian specialists to the United States and other countries to enable them to observe developments in their fields of work. The total number of these Indian participants now stands at 5,000. This includes 200 who are still undergoing training in the United States.

Dollar Loans

Loans extended to India by USAID and its predecessor organizations are of two kinds: (1) those repayable in rupees, and (2) those repayable in dollars.

Loans repayable in rupees: Loans extended to India by the Development Loan Fund (now absorbed into USAID) are repayable in rupees. These loans total $528.7 million [Rs. 396.53 crores]. (Please see pages 20 and 21 for details.)
Prior to November 1961, TCM had extended to the Indian Government loans totalling $154.1 million [Rs. 115.58 crores]. These were repayable in either rupees or dollars at the option of the Government of India. (For the sake of simplicity, a sum of $5.8 million [Rs. 4.35 crores], which was made available to the Government of India in the form of Italian, French, and Japanese currencies in exchange for Indian rupees, is included in this item.)

Loans repayable in dollars: USAID has extended 48 loans repayable in dollars. They total $2,361.2 million [Rs. 1,770.90 crores].
Terms: Repayment is scheduled over 40 years, with no payments of principal during a grace period of the first 10 years.
Interest: Recent loans bear an interest rate of 2 per cent per annum during the grace period and 3 per cent thereafter. (Please see pages 21 to 23 for details.)

Public Law 480 (Food for Peace) Programme : Agricultural commodities supplied to India under the Public Law [PL] 480 programme have played an important role in fighting food-scarcity and inflation. The original PL-480 legislation was enacted in 1954. Through successive acts of the U.S. Congress [parliament], the law has been extended to December 1970.

Title I: Under this title [chapter] the United States sells agricultural commodities to developing nations on concessional terms. India concluded the first PL-480 agreement on August 29, 1956. Since then nine additional agreements and 32 supplemental agreements have been signed—the latest on December 23, 1968.

Commodities: Taken together, the PL-480 agreements with India provide for a total supply of 48.2 million tons of wheat, 5.2 million tons of sorghum and maize, 1.7 million tons of rice, 3.3 million bales of cotton, 297,000 tons of vegetable oil, 170,000 tons of tallow, 7,400 tons of tobacco, 24,900 tons of nonfat dry milk, 13,000 tons of evaporated milk, 230 tons of whole milk powder, 400 tons of tinned fruit, and 80 tons of cheese. Of these commodities, almost all the quantities listed above—

excluding those provided in the December 23, 1968, agreement (2.3 million tons of wheat, 90,000 tons of tallow, 4,000 tons of nonfat dry milk, and 200 tons of tobacco) and a considerable quantity of cotton—have been received by India.

Value:

The value of commodities covered by all PL-480 agreements is $4,388.3 million (including some ocean transportation costs).

Terms:

India pays for PL-480 supplies in rupees.
For $4,226.6 million, the bulk of PL-480 proceeds, the agreements specify that 80.4 per cent should be returned by the United States to the Government of India in grants and loans for economic development (19.9 per cent as grants; 60.5 per cent as loans). A sum equivalent to 6.5 per cent of the total is reserved for loans to private enterprise; and 13.1 per cent is reserved for U.S. Government uses, but a substantial part of this amount, too, is utilized to promote a number of activities beneficial to India. PL-480 grants and loans have helped finance a great deal of development work undertaken by the Government of India.

The remaining $161.7 million provided in the PL-480 agreements is repayable in rupees convertible to dollars at the option of the U.S. Government. This portion of the agreements is covered by a 40-year loan with the same provisions relating to interest rates and grace period as USAID loans repayable in dollars (please see page 3).

Rupee Deposits:

Under the terms of the PL-480 agreements, the Government of India deposits in the United States Government account with the Reserve Bank of India rupees equivalent to the dollars paid to U.S. suppliers of agricultural commodities. These rupee deposits are made at the rate of exchange prevailing at the time of the dollar disbursements. As stated earlier, the total value of commodities provided in all the PL-480 agreements with India is $4,388.3 million. The major portion of the rupee deposits had been made before the devaluation of the rupee in June 1966. It is estimated that the total PL-480 rupee deposits will amount to approximately Rs. 2,365 crores, which is considerably less than the rupee equivalent of $4,388.3 million at the current rate of exchange.

(Please see pages 24 to 34 for additional information on the PL-480 programme.)

Title II:

This title provides for donations of agricultural commodities to help meet famine or other urgent or extraordinary relief requirements, and for distribution through voluntary agencies such as CARE [Cooperative for American Relief Everywhere], Catholic Relief Services, Church World Service, Lutheran World Relief, and UNICEF [United Nations Children's Fund]. During the current American fiscal year it is planned to supply 477,000 tonnes of food valued at $76 million [Rs. 57 crores] for distribution in India under Title II. This is the largest donation programme in the world. The food includes wheat, milk, protein foods, and vegetable oils.

Ninety-two per cent of the total Indian programme is directed toward raising the level of nutrition of 12 million schoolchildren and four million pre-school children. The schoolchildren are benefited through free lunches to which local communities and state governments make substantial contributions. This programme has stimulated school attendance and is helping materially to raise the physical standards of the coming generation.

The remainder of the food supplies is largely used as part payment for work done by 2,000,000 workers in a number of development projects such as construction and repairing of roads, digging of irrigation canals and wells, and reclaiming land.

The U.S. Export-Import Bank : The Bank authorizes loans, guarantees, and insurance to facilitate the foreign trade of the United States. The Bank has authorized 28 loans to India totalling $458.3 million [Rs. 343.70 crores]. Its loans are in dollars and repayable in dollars. In determining interest rates, the Bank considers its own cost of borrowing money. The current standard interest rate is 5.5 per cent per annum.

The Wheat Loan: As stated earlier, this loan marked the beginning of the programme of U.S. aid to India in 1951. The loan of $189.7 million [Rs. 142.28 crores], which financed the purchase of two million tons of wheat to meet an acute food shortage, is repayable in dollars and carries an interest rate of two-and-one-half per cent per annum.

In view of India's need for foreign exchange, the U.S. Government deferred the repayments due in 1959-68 to 1986-95, and $8.7 million [Rs. 6.53 crores] out of $10 million [Rs. 7.5 crores] due in 1968-69 to 1978-79. India will pay no additional interest on account of these deferments.

Dollar-Rupee Conversions: For the sake of uniformity and simplicity all dollar figures included in this Fact Sheet are shown with conversions in Indian currency at the current rate of Rs. 7.50 per dollar. Prior to June 5, 1966, the rate of exchange was $1=Rs. 4.76.

In regard to loans repayable in dollars, this Fact Sheet lists the equivalent of the entire loan amount in Indian currency at the current rate of exchange. However in many cases a part of the loan has already been repaid at the old rate.

Loans repayable in rupees fall in two categories. In the first category are loans extended by the former U.S. Development Loan Fund [USDLF], and under the USAID Mission's Technical Cooperation Programme. The loans provided foreign exchange in dollars, and the loan agreements included clauses providing that repayment would be based on the official rate of exchange at the time repayment was made. Thus devaluation had the effect of changing the outstanding balance in terms of rupees, though not in dollars.

In the second category are loans to the Government of India and to private enterprises from PL-480 funds. These loans are intended for purchasing supplies and services available in India. Devaluation does not affect the repayment terms. The borrower's liability is limited to the amount of rupees specified in the loan agreement.

A brief review of the U.S. aid programme

The basic purpose of U.S. assistance is to help India become economically self-sufficient on the basis of a balanced economy. The United States has provided more aid—both in amount authorized and in aid utilized—than all other countries assisting India put together. Following is a brief account of American aid to the different sectors of India's development programme:

Agriculture

In 1967-68 India harvested the largest foodgrain crop in her history. Although weather conditions have not been as favourable in 1968-69, the crop is expected to be even larger—100 million tons.

Qualified observers have described the remarkable increase in India's food production—from a low of 72 million tons in drought-stricken 1965-66—as a "Green Revolution."

India's highly successful new agricultural strategy is focused on combining high-yielding varieties of cereal grains with a "package" of agricultural requirements—fertilizers, pesticides, improved farm equipment, credit, and grain-storage facilities—in areas assured of sufficient water for irrigation.

At the request of the Government of India, the United States is providing support to vital segments of the new agricultural strategy. The very first technical cooperation agreement concluded by the United States with India—in 1953—related to agriculture. The United States has always taken a keen interest in helping India progress in this important sector. U.S. assistance has, however, received a new emphasis in the past three years. At present agriculture accounts for 40 per cent of the expenditures of the USAID Mission. Five years ago the figure was only 24 per cent.

U.S. foreign-exchange assistance for Indian agricultural development exceeds $700 million [Rs. 525 crores]. This amount includes several hundred million dollars of fertilizers supplied through non-project loans. In addition, the U.S. has extended to agricultural development loans and grants totalling Rs. 583 crores in Indian currency from the sales proceeds of commodities supplied under Public Law 480. Some 125 American agricultural specialists are now serving in India at the request of the Indian Government.

The New Seeds: The critical element of the new strategy has been high-yielding varieties of cereals: wheat, rice, maize, bajra, and jowar. The dwarf wheat strains now in widespread use in North India were originally developed in Mexico in a programme assisted by the Rockefeller Foundation. The dwarf rice strains, introduced later, were developed at the International Rice Research Institute, Manila, which has been established with the help of the Ford and Rockefeller Foundations. Hybrid varieties of maize, bajra, and jowar, which have met with the enthusiastic response of farmers from the Punjab to Kerala, were developed in India by Indian scientists, with some assistance provided by American scientists and institutions. Both the wheat and rice varieties have been adapted by Indian scientists to suit conditions prevailing in this country, and new, even more highly productive varieties have been evolved by them through crossing of local and foreign strains.

Agricultural Production Promotion Teams: The introduction of new plant varieties gives rise to several problems. The high-yielding cereals produce large crops, but they are more susceptible to certain insects and diseases than indigenous varieties, which have developed resistance in the course of several centuries of planting. To help the farmer protect the new crops more effectively, research and extension services in India are being brought closer to each other. At the request of the Government of India, USAID has arranged for teams of American experts to serve in seven states: Andhra Pradesh, Bihar, Gujarat, Madras, Maharashtra, Mysore and Orissa. The teams, which normally consist of half-a-dozen specialists, have helped Indian scientists and extension workers in identifying and solving problems encountered by farmers.

Research on Pulses: The major part of the protein requirements of the Indian people is derived from

pulses [lentils]. The Government of India has undertaken extensive research in pulses with a view to evolving more productive varieties. A team of American specialists is participating in this project. A large number of pulse varieties grown in India and the Middle East has been collected. Tests on their yield performance are being carried on in many states. Research in breeding new varieties has also been undertaken.

Fertilizers: During the past five years the amount of fertilizers used by Indian farmers has gone up (in terms of nutrients) from 600,000 tons to 1.5 million tons. This is largely because the new high-yielding varieties respond extremely well to fertilizers, and farmers thus find fertilizer application more profitable than in the past. Indigenous varieties of wheat and rice give an average yield increase of 10 pounds of grain per pound of nitrogen. The new varieties yield as much as 25 pounds. The demand for fertilizers has outstripped supply, despite increased domestic production and greatly increased imports.

Fertilizer Production: The U.S aid programme has assisted the establishment of two large fertilizer factories, at Visakhapatnam and Trombay.

The Rs. 50-crore plant at Visakhapatnam is operated by Coromandel Fertilizers Ltd., a joint Indo-American enterprise. The plant is currently delivering 1,000 tons of finished fertilizer per day, saving Rs. 16 crores per year in foreign exchange. The U.S. Export-Import Bank has extended a foreign-exchange loan of $25.9 million [Rs. 19.41 crores] to Coromandel, which has also received a loan of Rs. 14.67 crores from the sales proceeds of PL-480 commodities.

The Fertilizer Corporation of India, a public-sector enterprise, operates the Trombay plant, which presently has an annual capacity of 135,000 tons of fertilizer nutrients. The plant has been largely financed by U.S. loans. An additional U.S. foreign-exchange loan, authorized recently, will increase the plant's capacity to more than half-a-million tons by 1972, making it not only the largest fertilizer plant in India but one of the largest in the world.

The Trombay expansion programme includes the latest technological developments. These are expected to be helpful in reducing production costs. U.S. assistance to Trombay totals $74.8 million [Rs. 56.10 crores] in foreign-exchange loans, plus a loan of Rs. 13.43 crores from PL-480 funds.

Another large fertilizer factory, under construction in Madras, is expected to go into operation in 1969-70. The Government of India is building the plant in partnership with a private U.S. firm (American International Oil Co.). USAID has helped the financing of this project by insuring loans extended to it by American banks and pension funds. The factory has an annual capacity of 271,000 tons of fertilizer nutrients.

Fertilizer Imports: Because the demand for fertilizers greatly exceeds local production, India imports large quantities of fertilizers, with the United States the largest supplier. U.S. non-project aid currently provides about $130 million [Rs. 98 crores] a year for the import of fertilizers. This year India will receive fertilizers containing 500,000 tons of nitrogen and 200,000 tons of phosphate. These imports from the United States are expected to account for more than half of India's total nitrogen imports and 90 per cent of total phosphate imports.

Plant Protection: Plant diseases, insects, rodents, and other pests destroy a sizable part of India's food production. The Government of India has launched a large-scale plant-protection programme. The consumption of pesticides increased tenfold between 1957 and 1967. The area treated with pesticides is expected to rise from 16 million acres in 1961 to 200 million acres in 1971. At the Indian Government's request, USAID is assisting in several sectors of plant protection.

India presently produces 70 per cent of the total quantity of pesticides applied by her farmers. U.S. non-project loans finance the cost of importing technical-grade pesticides which are then formulated in India. A considerable portion of India's domestic production of pesticides is accounted for by joint Indian-American private enterprises, which have received loans from the U.S. Government.

Spraying pesticides from the air is a quick and highly effective method of pest control. Through aerial spraying, large areas are covered in a short time and pest epidemics controlled before they break out. The Government of India has established aerial spraying units and is providing encouragement to private firms in this field. A considerable part of the fleet of airplanes now engaged in aerial spraying in India is of American origin. The Indian Government plans to use $1.5 million [Rs. 1.13 crores] from a recent U.S. Export-Import Bank line of credit to purchase 50 additional U.S. spray aircraft.

Rural Electrification: Rural electrification helps increase food production through energization of pump-sets connected to wells and tubewells. Electric

power is also useful in the efficient processing of foodgrains and the creation of modern storage facilities. In the United States, cooperatives play a significant role in this field. At the Government of India's request, USAID has arranged for visits by officials of American cooperatives to India to investigate the possibilities of establishing cooperatives to distribute power in rural areas.

Under a contract with USAID, the National Rural Electric Cooperative Association of America has sent three teams to India. Along with officials of the Central and state governments and Indian cooperatives, the teams have conducted detailed studies on the establishment of pilot cooperatives in Andhra Pradesh, Gujarat, Maharashtra, Mysore, and Uttar Pradesh. Negotiations between the authorities concerned are in progress for the early establishment of these cooperatives.

Soil and Water Management: India has made notable progress in increasing the area under irrigation. The gross irrigated area has increased from 60 million to 97.6 million acres during the past 17 years. However, several problems remain to be solved before the maximum benefits are obtained from costly irrigation projects. In the field of irrigation both India and the United States face similar problems. At the request of the Government of India, USAID is providing assistance in the field of soil and water management.

Three American specialists work with the Water Utilization and Management Unit of the Ministry of Food and Agriculture. They assist the Government of India in developing programmes and establishing technical standards for soil and water management on rain-fed and irrigated lands.

To demonstrate improved water-management methods to farmers, USAID is helping two pilot projects—near Bellary in Mysore state and near Patiala, Punjab. A third pilot project will be established in the near future near Dhorighat, Uttar Pradesh.

Agricultural Universities: During the past decade eight new agricultural universities have been established in India with the cooperation of the American Government and six American universities. The new universities [cooperating U.S. institution indicated in parentheses] are located in Andhra Pradesh (Kansas State University), Madhya Pradesh (University of Illinois), Maharashtra (Pennsylvania State University), Mysore (University of Tennessee), Orissa (University of Missouri), Punjab (Ohio State University), Rajasthan (Ohio State University), and Uttar Pradesh (University of Illinois).

The new Indian universities have effected several radical innovations. Students are encouraged to do a great deal of practical work in the fields. Professors undertake research in problems facing farmers of the adjacent regions.

Four universities—Andhra Pradesh, Madhya Pradesh, Mysore, and Punjab—have taken over the responsibility for all state agricultural research programmes. To an ever-increasing extent, all agricultural universities are participating in extension work—carrying knowledge of improved methods to farmers—by providing training for extension workers and in some cases directly taking over the work in large areas.

Research undertaken by the agricultural universities has been of great value to farmers. For instance, several of the new hybrid varieties of maize and bajra were developed at the Punjab and Uttar Pradesh Agricultural Universities. A great deal of the work involved in breeding and testing the phenomenally successful dwarf wheats was carried on at these two universities and also at the agricultural universities of Madhya Pradesh and Rajasthan.

The large number of students graduating from India's agricultural universities are helping increase food production through service in government agricultural departments, research stations, and in the promotional and sales divisions of enterprises producing fertilizers, pesticides, and improved seeds.

Agricultural Research: From the portion of PL-480 sales proceeds reserved for U.S. Government uses, the Agricultural Research Service of the U.S. Department of Agriculture has extended some 220 grants to finance research in 70 institutions located in all parts of India. Research performed by Indian scientists on these projects has been of value to the worldwide development of agricultural science. Future potential benefits are enormous. Subjects of study include the development of new or extended uses of agricultural products, marketing, economics, human nutrition and all aspects of farm and forest research.

Other Assistance: The United States also has supplied iron and steel for making agricultural implements; soil-testing equipment; trawlers, boats, and cold storage for fishery modernization; tubewell casing and machinery for boring tubewells; tractors, combines and other agricultural machines; modern silos and dairy and poultry equipment.

Education

The United States has assisted India's efforts in virtually every area of education.

Science Education Improvement: The dynamic Summer Science Institutes programme, which began in 1963, seeks to bring college and secondary-school teachers of science and mathematics up to date on new methods of teaching their subjects. In 1968 more than 5,500 Indian teachers attended the institutes, which are held during summer vacations. Some 178 American professors came to India to serve as consultants. In 1967 the United States authorized a loan of $12 million [Rs. 9 crores] for Indian education. A part of the loan has been used to purchase laboratory equipment and other supplies required by the summer science institutes.

The original idea (institutes for teachers of high schools, higher secondary schools, pre-university courses, and intermediate colleges) generated such enthusiasm with its practical success that it was expanded to include three more separate categories (institutes for college and university teachers; for teachers in polytechnic institutes; and for teachers in engineering colleges). Subjects now include not only biology, chemistry, physics, and mathematics but also civil, mechanical, electrical, metallurgical, and production engineering.

Representing the U.S. in the project is the National Science Foundation [NSF], which had taken the lead in sponsoring the original summer-institutes programme in the United States. On the Indian side are the National Council for Science Education, the Education Ministry, the University Grants Commission, the National Council for Educational Research and Training, and the Association of Principals of Technical Institutions.

The teacher-students attending the institutes learn the latest methods of instruction, and how to use new laboratory techniques and teaching-aids. They read the newest and best textbooks. The institutes give them opportunities for study under top-ranking Indian professors and for consultation with leading American scientists and engineers. In the five years since 1963, more than 20,000 Indian teachers of the pure and applied sciences have taken part in some 370 institutes, with a total of 600 American consultants.

Teachers participating in the institutes receive copies of textbooks incorporating new teaching techniques developed in recent years. The books emphasize inquiry and observation rather than memory work.

Colour slides, special films, and experiment kits are among the important instructional aids used. The experiment kits in some instances are made in India from indigenous materials.

Mathematics teachers attending the institutes discuss the "new mathematics" which has come to the fore in the past decade. They study revised curricula which include new concepts as well as new ways of looking at old mathematical concepts.

The Government of India plans to continue the summer science institutes as a permanent feature of Indian education—an instrument for the in-service training of teachers at both secondary-school and college levels. U.S. participation will gradually be phased out so that eventually the institutes will be completely self-sufficient.

Both the Indian Government and its American collaborators recognize that the summer institutes alone cannot bring the "new approach" into the science classroom and laboratory instruction methods of all the teacher-participants. The courses in new methods and ideas must be followed up.

The NSF team in India has worked extensively in helping to develop follow-up methods to enhance the lasting impact of the institutes. Team members travel about India at the request of India's National Council for Science Education to provide experience gathered in the U.S. to education supervisors and science teachers as an aid in solving a wide variety of pedagogical problems. NSF experts have worked with Indian manufacturing firms to develop and produce low-cost demonstration apparatus for science teaching. On request, also, guest lecturers on science teaching are obtained from leading U.S. science and education circles.

Indian Institute of Technology, Kanpur: The Indian Institute of Technology [IIT], Kanpur, is one of five such technological universities established by the Government of India to serve as "pace-setters" for other engineering and technical colleges in the country.

The U.S. Government is assisting IIT/Kanpur through Educational Development Center Inc., a consortium of nine American universities—California Institute of Technology, Carnegie Mellon University, Case Western Reserve University, Massachusetts Institute of Technology, Ohio State University, Princeton University, Purdue University, University of California, and University of Michigan. The collabrating U.S. universities have deputed some 90 members of their faculties to serve at Kanpur.

IIT/Kanpur has an extensive campus covering an area of more than 1,200 acres. The laboratories are fitted with equipment comparable to the best in any part of Asia.

A third of the 220-member faculty was recruited from among Indians working and studying abroad. Because of IIT/Kanpur's excellent reputation, many of them gave up better-paying jobs in foreign countries to return to India. By thus helping to arrest and reverse the "brain drain"—the flight of highly qualified Indian technologists to foreign countries—IIT/Kanpur has performed a notable service.

IIT/Kanpur provides undergraduate (Bachelor of Technology) training in six technical fields: chemical engineering; civil engineering; electrical engineering; mechanical engineering; metallurgical engineering; and aeronautical engineering. It also offers the M.Sc. degree in all these fields and science. Post-graduate study and research leading to the Ph.D. degree are undertaken in all departments, including the humanities and the social sciences. There are 1,300 students on the rolls.

An important part of the institute is the Computer Centre. It now has in operation an IBM computer system, perhaps the most versatile installation in India. The centre functions a great deal of the time on problems posed by industries located in Kanpur and other cities.

National Institute of Education: This institute, which is located in New Delhi, aims to produce leaders of Indian education. Teachers College, Columbia University, New York, was closely associated with the institute from its founding in 1961 through June 1967.

Elementary Education: U.S. grants and loans totalling Rs. 114.09 crores from PL-480 funds are meeting a substantial part of Government of India expenses for development of elementary education. The money is utilized to improve the quality of instruction through a teacher-training programme, to upgrade science teaching, develop better textbooks, increase teacher salaries, and build schools in rural areas.

Engineering: The U.S. has provided equipment for five engineering colleges at Guindy, Howrah, Kharagpur, Poona, and Roorkee. Grants from PL-480 funds have helped establish 14 regional engineering colleges at Allahabad, Bhopal, Durgapur, Jaipur, Jamshedpur, Kozhikode, Kurukshetra, Mangalore, Nagpur, Rourkela, Silchar, Surat, Tiruchirappalli, and Warangal.

Since 1958 more than 500 Indian engineering educators have received advanced training in the United States.

Multipurpose Secondary Education: The Government of India has established four Regional Colleges of Education at Ajmer, Bhopal, Bhubaneswar, and Mysore. These colleges, administered by the National Council of Educational Research and Training, promote new patterns and practices in training teachers for multipurpose secondary schools. Under a contract with USAID, the Ohio State University is cooperating with these regional colleges.

Training is provided in these institutions in the fields of science, agriculture, technology, and commerce. Apart from training student-teachers, the colleges provide facilities for teachers and officials of government departments of education to undergo refresher courses. Improved instructional materials for schools are prepared. These include textbooks, teachers' manuals, instructional guides and models.

At each campus there is a demonstration school. These schools function, on the one hand, as laboratories of education for the college students; on the other hand, they have become centres of experimentation and demonstration for schools in the four regions.

Health and Family Planning

The U.S. has been assisting in a number of projects designed to improve the health of India's people:

Malaria Eradication: In 1953 more than 800,000 people died of malaria in India; today virtually none does. The incidence of the disease has been reduced by 99.6 per cent. The Government of India's Malaria Eradication Programme is one of the world's largest ventures in the field of public health. U.S. assistance to the programme began in 1958. A number of American specialists and consultants assisted the Central Directorate of the National Malaria Eradication Programme and the state governments. Most of the insecticides, drugs, and equipment used have been financed by U.S. dollar aid, and much of the costs incurred within India have been met from PL-480 funds.

Medical Education: Up to 1962 the U.S. assisted all phases of Indian medical education. It supplied scientific and professional equipment, teaching-aids, and laboratory and audiovisual equipment. American

professors came to India to assist in expanding medical education. Four hundred and thirty Indian medical teachers received advanced training in the United States. Institutions which received U.S. assistance include the All-India Institute of Medical Sciences, New Delhi, and seven medical colleges at Baroda, Cuttack, Hyderabad, Indore, Jaipur, Mysore, and Trivandrum.

Training Teachers: A grant from PL-480 funds financed the expenditure incurred by the Government of India on the training of 4,500 teachers for medical colleges.

Nursing Education: The United States made available nursing educators and equipment for nursing colleges at Hyderabad, Indore, and Jaipur. American specialists helped the Safdarjang Hospital, New Delhi, and the Directorate of Medical Services, Andhra Pradesh, in organizing a Central Supply Service for the use of hospital equipment.

Health Education: American technicians helped the Government of India train individuals and develop suitable administrative and operational patterns in training and research. USAID assisted the Central Health Education Bureau, New Delhi, and Health Education Bureaus in Andhra Pradesh and Madras.

Water Supply and Sanitation: With American assistance, the Government of India established a Central Public Health Engineering Organization to administer an All-India Water Supply and Sanitation Programme. The United States made available the services of a number of technicians to the programme. It also supplied equipment for use both by the Central Organization and by the Central Public Health Engineering Research Institute, Nagpur. Indian personnel have been trained in the United States.

Communicable Diseases: The National Institute of Communicable Diseases, located in New Delhi, has received U.S. technical assistance. Special emphasis was given to increasing the institute's capacity to undertake epidemiological investigations and to evaluate the progress of national programmes such as smallpox eradication. A continuing working relationship has been developed with the U.S. Public Health Service and its National Communicable Disease Center at Atlanta, Georgia, for mutual benefit. U.S. help has also been provided for research on diseases, such as rabies and brucellosis, communicable to man from lower animals.

In the field of controlling communicable diseases, USAID has also rendered assistance to India's anti-filariasis [elephantiasis] campaign and supplied equipment to the Pasteur Institute at Coonoor, Madras State, for the production of oral polio vaccine.

Family Planning: The Indian family planning programme is the largest in the world. Through September 1968, more than five million sterilizations were performed in India. These constitute 50 per cent of the total sterilization operations performed in the world. The achievement in the field of the intra-uterine contraceptive device [IUCD]—otherwise known as the loop—is also impressive. Over 2.6 million loops were inserted.

The primary policy initiative, responsibility, and credit for family planning programme emphasis and progress naturally belongs to the Indian Government. India has sought help from the United States and some other countries and international agencies. However, foreign assistance, while useful, is still marginal and always subordinate to the initiatives of the Government of India.

Several aspects of India's family planning programme receive U.S. support:

VEHICLE LOAN: The Government of India has developed a programme to expand the family planning vehicle fleet in the country by 6,193 vehicles. On June 29, 1968, the U.S. Government extended a loan of $2.7 million [Rs. 2 crores] to meet the cost of importing some components for the vehicles, which will be manufactured in India.

The vehicles, most of which are Jeeps, are intended to increase greatly the mobility of family planning teams, especially in the rural areas. At present it is difficult to provide the services of doctors for family planning work in villages in the remote interior. The automobiles will help overcome this difficulty.

Some of the vehicles will be used as mobile sterilization and IUCD clinics. This will greatly increase the effectiveness of medical teams, and should result in a large increase in the number of sterilizations performed and loops inserted.

Eighty-five of the vehicles will be audiovisual vans to be used for mass communication and education in even the remotest areas. The Government of India has taken several steps to increase the number and variety of family planning films. The vehicles will enable these films to be shown to a much larger rural audience.

CONDOMS: Today condoms are available in retail stores in many parts of India along with common consumer goods like soap, tea, and cooking oils. This has become possible with the launching in September 1968 of the Nirodh programme for family planning. Nirodh [meaning prevention] is the special brand name of the condoms made available by the Government of India. A unique feature of the project is that the condoms are distributed by a group of half-a-dozen private commercial firms for sale through 600,000 retail shops. The entire country has been divided into six zones, and one company will operate in each zone.

USAID has provided a grant of $3 million [Rs. 2.25 crores] to provide 170 million condoms. Technical assistance for the condom distribution project is being provided by the Ford Foundation.

ORAL CONTRACEPTIVES: Although many million women use oral contraceptive pills outside India, the pill has not so far come into widespread use in this country USAID has extended a grant of $200,000 [Rs. 15 lakhs] to finance the import of pills from the United States. Sufficient pills will be obtained to meet the needs of 100,000 women for a 12-month period.

Essentially, this is a project to test the acceptance of pills by Indian women and their effectiveness in local conditions. If this pilot programme is successful, the pill may become a very useful part of India's family planning drive.

DEMOGRAPHY: USAID technicians are assisting in improving the demographic (population) research and data-collecting and -analysing capabilities of the Demographic Training and Research Centre, Chembur, Bombay, which has an outstanding record of activity in the field. U.S. assistance is intended to greatly expand the present scope of its work.

FAMILY PLANNING TRAINING: Technical advisory services provided by USAID and the Ford Foundation are helping the Government of India to assess the training loads and training needs in family planning and to develop improved training methods and materials for all levels of workers. Audiovisual and training equipment is being supplied by the United States to various family-planning training centres in order to strengthen their training programmes.

INTENSIVE DISTRICTS PROGRAMME: The Government of India has selected, initially, 17 of the 51 most populous districts in India for increased family planning activities to help achieve the goal of reducing the country's birth rate to 22 per 1,000 as soon as possible. USAID is supplying audiovisual equipment for mass education and information in the intensive districts and an offset press and accessories for each of the 17 districts.

"DAI" TRAINING: The United States is providing teaching kits for the training of *dais*, the traditional birth-attendants, who have considerable influence over rural women. These untrained traditional "nurses" operate throughout India and the Government of India plans to use them, after appropriate training, in the family planning programme.

ANAEMIA PROPHYLAXIS: Maternal and child health and family planning are interrelated. A serious problem affecting many Indian women is anaemia (a condition in which the blood is deficient in red blood cells or the cells are deficient in a protein containing iron). To help them overcome anaemia, the United States is providing 350 kilograms of folic acid (a vitamin of the B complex). In combination with ferrous sulphate (which contains iron), the vitamin will be distributed through primary health centres to pregnant women and nursing mothers, to women who have had IUCDs inserted, and to pre-school-age children, under the Indian Government's Anaemia Prophylaxis Programme.

COMMUNICATIONS: USAID is making available mailing machines, tape recorders for extended family-planning radio coverage, and film-making equipment. Assistance is being given the Government of India to establish a direct-mailing system which will produce and distribute programme fact sheets, technical articles, brochures, and other literature to an ultimate audience of over one million. The recipients will include doctors, nurses, government officials, family planning field workers, schoolteachers, and influential private citizens in both urban and rural areas.

RUPEE GRANTS: The U.S. Government has extended rupee grants totalling Rs. 8.5 crores to the family planning programme. These have been made from the sales proceeds of agricultural commodities supplied under the PL-480 [Food for Peace] programme.

Nutrition: More and more attention has been paid in India in recent years to improving not only the quantity

but also the quality of food. Indian experts have established that shortage of protein in the diet is particularly harmful. Protein malnutrition can result in stunted physical and mental growth.

Several projects have been undertaken in India to increase the supply of protein and improve its quality. Plant breeders have evolved cereal varieties with increased protein content. Bread sold in many cities has been enriched with lysine, an amino acid which improves the quality of the protein. Steps are being taken to utilize the protein present in groundnut cake. Considerable quantities of Bal-Ahar, a children's food rich in protein, are now being manufactured, in part from food donated to India under Title II of the U.S Public Law 480 programme.

USAID's role in the field of nutrition has largely been of an advisory nature. Numerous American specialists have visited India and conferred with their Indian counterparts. USAID technicians are working closely with government ministries, research institutions and food industry leaders in the development, marketing and promotion of new, high-protein foods and the nutrient fortification of existing foods.

Industries

During the past 15 years the United States has made available machinery, components, spare parts, raw materials and other industrial supplies valued at more than $2,300 million [Rs. 1,725 crores] to modernize and expand Indian industries.

Industrial projects which have received U.S. foreign exchange assistance include a rayon tyre-cord plant at Kotah, an aluminium factory at Renukoot, factories manufacturing chemicals and plastics at Bombay, Calcutta, Mettur and Thana, a paper mill at Amlai, a rayon factory at Kalyan, a pulp factory at Fort Songhad, a plant manufacturing forgings at Poona, a bearings plant at Jaipur, a coal mine ropeway at Jharia and two coal washeries at Dugda and Patherdih.

Non-project Assistance: In recent years a substantial part of the United States' aid to India has been in the form of non-project loans. These loans are so called because they are not designed for a specific project. They finance many of the import requirements of agriculture and industry as well as health, education, and other sectors of development. Also known as production loans, this form of aid is an important tool in U.S. efforts to assist India's development. The total of U.S. non-project assistance to India since the U.S. aid programme was extended to this country in 1951 exceeds $2,000 million [Rs. 1,500 crores]. (This amount includes several hundred million dollars for financing fertilizer imports.)

The United States is the leading provider of non-project assistance to India. In recent years the Government of India's emphasis in aid negotiations has shifted from project assistance to non-project assistance. This has been done in response to the changes in the economy brought about by India's development.

Two decades ago India required foreign aid largely to build specific projects: steel mills, power-generating stations, chemical factories, machine-tool plants. But today India has a highly diversified industrial sector. She now makes quality products such as machine tools,trucks and buses, electronic equipment, and a wide variety of industrial equipment, besides many consumer products.

Indian industry is capable of building the machinery needed for most new projects. But India still has to import some components and spare parts for industrial equipment, as well as some key raw materials not available in the country. If these imports cannot be had, production will suffer and, in some cases, come to a halt. U.S. non-project loans provide for much of these essential imports.

Almost all Indian industries have benefited from U.S. non-project assistance. The Government of India allots funds made available by the United States to several thousand private and government undertakings to finance these imports. Some specific examples of non-project imports are: non-ferrous metals; a wide variety of chemicals; lubricants; components such as specialized roller bearings; and spares for industrial and construction equipment.

It has been calculated that every dollar of raw material or component furnished by U.S. non-project assistance enables Indian industry to turn out an additional two-and-a-half dollars' worth of production.

Indian industry utilized U.S. non-project assistance totalling $120 million [Rs. 90 crores] in 1966-67. This generated a multiplier effect to produce $300 million [Rs. 225 crores] worth of industrial goods.

Mineral Resources: The United States is extending considerable assistance to India in developing the country's mineral resources. An important agreement provides for a survey to locate deposits of copper, lead

and zinc. The discovery of deposits of these non-ferrous metals is of vital importance to the economy because India now imports most of her needs. At present the country spends more than Rs. 60 crores on such imports, and the figure is expected to exceed Rs. 100 crores by 1970.

Known as Operation Hardrock, the survey has used airborne geophysical techniques which have been developed in recent years and have greatly speeded up mineral exploration. Two airplanes fitted with electro-magnetic, magnetic, and radiometric instruments have surveyed large parts of Andhra Pradesh, Rajasthan, and Bihar. A large number of interesting "anomalies", some of which may contain non-ferrous metal deposits, have been located.

The U.S. Government is also assisting Operation Softrock, the exploration programme for phosphate, an essential ingredient of several types of chemical fertilizer. India currently imports all its requirements of phosphate rock at an annual cost in foreign exchange which, if present trends continue, is likely to be Rs. 75 crores in 1971. The discovery of phosphate rock deposits would therefore be of considerable significance to the country's balance of payments.

With assistance provided by USAID, the Geological Survey of India has located promising deposits of phosphate rock in the Himalayan foothills near Mussoorie and in Rajasthan. Work is currently in progress to assess the size of the deposits, the quality of the phosphate rock, and the problems which will have to be solved before the deposits can be exploited commercially.

However, the Rajasthan Directorate of Mines and Geology has located a vast phosphate-rock deposit near Udaipur, using methods pioneered in India by Dr. Richard Sheldon, an American geologist. It is too early for final assessment of this deposit, but all signs so far indicate that it will be large enough to take care of India's phosphate requirements for many years. The metallurgist of Operation Softrock is now conducting beneficiation tests on those portions of the Udaipur deposit which cannot be used directly in fertilizer production.

Another major U.S.-assisted effort is the Orissa Iron Ore Project. This includes the development of the Kiriburu iron ore mine in Orissa, the development of the Visakhapatnam port to enable it to handle large ships, and the construction of railway lines to link the mine with the port. By enabling India to export several million tons of iron ore annually to Japan, the project helps India earn considerable quantities of foreign exchange.

Export Promotion: USAID has recently started providing the Government of India with assistance in the field of exports. The initial effort has been assistance in a series of commodity surveys of products that have potential for significant export increase. These surveys are designed to provide information on potential customers and on other producers in the field and to pinpoint various problems holding back India's export growth. Some assistance is also being provided to help improve the compilation of export statistics.

Labour

During the past 17 years the United States has provided more than $3 million [Rs. 2.25 crores] in foreign exchange plus Rs. 58 crores in PL-480 rupees to help establish or assist skill-training and other labour-oriented institutions and provide them with modern equipment and technical know-how; to strengthen the growth of shop-level leadership among trade unions; and to provide support for several research and labour-relations institutions in India.

Of all the U.S. assistance for labour programmes, the largest share has gone to skill-improvement. Under a USAID contract, the Dunwoody Institute of Minneapolis has helped the Bombay Central Training Institute in the development and operation of training programmes for such trades as machinist, electrician, grinder, welder, motor mechanic, tool and die maker and instrument mechanic. Between 1955 and 1958 the United States provided technical assistance and equipment to 60 centres for training skilled workers in six basic industrial and construction trades. Winners of national skill competitions have received specialized training in the U.S. and tool kits and technical books from USAID among their prizes.

The United States has extended grants and loans from PL-480 funds for Central Government expenditures on all the seven Central Training Institutes in the country and 357 industrial training institutes with a capacity of over 100,000 students. Expenses incurred on apprenticeship training programmes have also been met.

Development of harmonious industrial relations, effective administration of labour laws, an analytical approach to manpower planning, and improved industrial safety practices are some of the other important Indian government aims with which the United States has been associated.

Assistance has been provided in the establishment and initial operation of the Central Labour Institute,

Bombay; the Industrial Safety Council, Bombay; and the Indian Institute of Labour Studies [formerly called the Central Institute for Training in Industrial Relations], New Delhi.

A considerable amount of assistance has been given workers' education programmes, and labour relations and trade union research activities being undertaken by the Indian government, trade unions and several other institutions. The United States is cooperating with the Central Board for Workers' Education in improving the technical capabilities of the education officers and upgrading the audiovisual techniques used in training programmes.

An important part of U.S. aid to Indian institutions in the labour field has been the provision of advanced training in the United States to Indian teachers, officials, and other specialists. More than 200 Indian labour specialists have so far visited the United States and other countries as part of the U.S. participant programme.

Management

Efficient management of the Indian economic growth programmes, whether in the public or private sector, requires application of modern management techniques. This awareness on the part of the Government of India found ready response from the U.S. Government and, beginning in 1963, U.S. assistance in this area has been augmented.

USAID management programmes are aimed at helping the Government of India to improve decision-making in key areas, to install modern systems of management planning, scheduling, and control and to improve organization, procedures, executive skill and performance.

To achieve these objects, selective programmes are designed to provide (a) technician services in priority areas, (b) U.S. training to Indian managers in certain areas, and (c) limited commodity assistance. Current efforts are directed toward pilot demonstration of modern management techniques for planning, scheduling and monitoring enterprises, field training of upper-level enterprise managers in modern management techniques, improvement of financial administration and enlarging capability for collecting, analysing and presenting information related to development programmes and administration for use by planners and decision-makers.

Government of India management programmes have extended to a wide variety of agencies, enterprises, universities and management institutions. Among the areas where U.S. technician services have been provided are: to the Planning Commission to assist in pilot demonstration of management control and information systems; to the Ministry of Finance to help in improvement of income-tax administration; to the Indian Institute of Public Administration and the universities of Punjab, Jaipur and Lucknow to enlarge and institutionalize Indian capability for survey research; and to the Ministry of Home Affairs to advise on civil service and police administration.

Advanced training in the United States also has been provided in management of railways, ports, fertilizer production, heavy electricals, posts and telegraphs; financial and tax administration; management analysis; regional and urban development; police administration; management education; statistics management, etc.

Power Development

In the current financial year alone, India is likely to add some 2 million kilowatts of power-generating capacity —about as much as her *total* was in 1950. And by the end of the financial year 1968-69 the total power-generating capacity is expected to be 15 million kilowatts.

Of this 15-million-kilowatt total, as much as one-third is accounted for by the 30 power projects aided by the United States.

India has received more assistance in power development from the United States than she has from any other country. This assistance—$465.7 million [Rs. 349.28 crores] in foreign exchange plus Rs. 346 crores in Indian currency from the sales proceeds of farm products supplied under the Food for Peace [Public Law 480] programme—has played a key role in augmenting India's power resources.

Together, the American-aided power projects in India will, when completed, have an installed generating capacity of some 6.5 million kilowatts.

Of this, 20 projects, which will have a total installed capacity of about 4 million kilowatts, are equipped with power generators acquired with U.S. assistance. These projects include Tarapur, India's first nuclear power station; Chandrapura, one of the largest thermal power plants in the country; and Sharavathi, which on completion will become the second largest hydroelectric power project in South Asia.

Ten projects, which will produce the remaining 2.5 million kilowatts, have received assistance from rupee

funds derived from the sale of U.S. farm products or have utilized U.S.-financed construction machinery. Power generators for these projects have been or will be made in India or bought with India's foreign-exchange resources or with assistance provided by other countries.

Increased power production in India has helped the electrifying of approximately 2,000 route kilometres of railway, ensuring quicker and more efficient transportation. Increased power generation has also promoted industrialization. Industry now uses about 70 per cent of India's power.

Some Important U. S.-Assisted Power Projects

Chandrapura: The three 140,000-kilowatt turbo-generators in operation at the Chandrapura (Bihar) thermal power station (capacity: 420,000 kilowatts) are the largest units of their kind in India. Chandrapura is located in the Damodar Valley, India's most highly industrialized region, and is operated by the Damodar Valley Corporation. Power produced at Chandrapura is making a significant impact on industrial production in Bihar and West Bengal and helping avert the power shortages of recent years.

Rural electrification has made big strides. In the field of rail transport, Chandrapura power has helped electrify the track from Calcutta to Mughalsarai.

With all three generators working at full capacity, Chandrapura can generate enough power to light five million rooms, or energize a lakh of pump-sets each capable of irrigating 10 acres of land. If used entirely in light engineering industries, its power production could create more than a hundred thousand jobs.

Bandel: The Bandel (West Bengal) thermal power station (capacity: 355,600 kilowatts) is one of South Asia's largest. Bandel has made possible the establishment or expansion of chemical and heavy and light manufacturing industries and railway electrification. Power is also being supplied to a large number of irrigation pumpsets.

Dhuvaran: Earlier U.S. loans financed almost the entire cost of the existing Dhuvaran (Gujarat) power station. A second U.S. dollar loan is partially financing the cost of adding two more generators, raising the ultimate capacity to 534,000 kilowatts.

Dhuvaran is powering both industrial and agricultural development in Gujarat. The State has a high potential for industrialization, and the petroleum refining and petrochemical industries are developing rapidly as a result of discoveries of oil and gas there. Four thousand additional villages are being electrified with Dhuvaran power, which is also providing electricity for 100,000 irrigation wells.

Sabarigiri: The Sabarigiri hydroelectric project (capacity: 300,000 kilowatts) has more than doubled the installed power-generating capacity of Kerala. Almost entirely financed by the United States, Sabarigiri—named after Kerala's holy mountain—harnesses the enormous power potential of two of India's shortest rivers. The mammoth project includes a dam across the River Pamba and two dams on the River Kakki, plus a network of tunnels, penstock pipes, turbines, and new roads.

Sabarigiri is helping to expand many existing industries or establish new ones. A large-scale expansion of irrigation from wells, using electric pump-sets operated by Sabarigiri power, is helping farmers bring more land under rice. Salt water is also being electrically pumped from tens of thousands of acres of low-lying farm lands back to the sea.

Sharavathi: The Sharavathi (Mysore state) hydroelectric power project, dedicated in January 1965 by the late Prime Minister Lal Bahadur Shastri, is intended to be one of the largest power projects in the world. The immediate target is a capacity of 712,800 kilowatts but the ultimate potential exceeds a million kilowatts.

Sharavathi was designed by Indian engineers and built by 50,000 Indian men and women workers. Sharavathi has brought electric light and power to thousands of villages. It has greatly benefited the economy of Mysore state, whose industries include aircraft, aluminium, cement, chemicals, electronics, engineering, machine tools, paper, telephones, and textiles.

Tarapur: India has entered the nuclear age with the Tarapur (Maharashtra) station (capacity : 380,000 kilowatts), her first venture in harnessing the atom for the generating of commercial power. Tarapur's twin electric reactor units each include a 270-ton cylindrical reactor pressure vessel.

The water that will be turned into steam to rotate the turbines and generate power will come from a reservoir of 106 million cubic feet capacity—enough to feed the station even if the monsoon were to fail two years running. The U.S. Government will provide enriched uranium fuel for the atomic power station on a deferred-payment basis. Tarapur will supply power at a cost 10 to 15 per cent lower than thermal stations in the same area. Power from the Tarapur station will light thousands of villages and power hundreds of industrial plants in both Maharashtra and Gujarat.

(See tables on following pages.)

Projects Equipped with U.S.-Financed Power-Generating Machinery

Project	Capacity	U.S. foreign exchange assistance	Assistance in Indian currency from the sales proceeds of U.S. agricultural commodities
	(*Kilowatts*)	(*Million* $)	(*Crores of Rupees*)
1. Ahmedabad extension, Gujarat	30,000	3.7	—
2. Amarkantak [Birsinghpur], Madhya Pradesh	60,000	7.7	6.67
3. Bandel, West Bengal	355,600	38.0	8.20
4. Barapani [Umiam], Assam	27,000	1.7	6.40
5. Barauni, Bihar	30,000	3.6	1.31
6. Chandrapura, Bihar	420,000	41.1	16.60
7. Dhuvaran [Cambay], Gujarat	534,000	62.4	12.72
8. Durgapur, West Bengal	150,000	18.0	3.43
9. Indraprastha, Delhi	36,600	4.0	—
10. Indraprastha extension, Delhi	187,500	15.2	15.05
11. Kanpur, U.P.	15,000	1.5	0.95
12. Nahorkatiya, Assam	69,000	6.7	—
13. Rajasthan Power Facilities Project (Dungarpur, Bharatpur, Alwar, and Jaisalmer)	7,500	1.0	—
14. Ramagundam, Andhra Pradesh	62,500	8.4	3.70
15. Sabarigiri, Kerala	300,000	20.2	21.06
16. Satpura, Madhya Pradesh	312,500	21.1	15.93
17. Sharavathi, Mysore	712,800	24.6	34.45
18. Talcher, Orissa	250,000	33.0	18.74
19. Tarapur, Maharashtra	380,000	75.0	—
20. Trombay, Maharashtra	140,000	17.9	—
Non-Project Assistance			
1. U.S. Development Loan Fund credit No. 21 for power-generating machinery	—	9.5	—
2. Amount utilized to purchase power equipment from the first and second lines of credit extended by the U.S. Export-Import Bank	—	4.5	—
Total	4,080,000	418.8	165.21

Power Projects Which Have Received Assistance from Rupee Funds Generated by the Sale of U.S. Agricultural Commodities or Which Have Utilized U.S.-Financed Construction Machinery*

	Project	Capacity	U.S. foreign exchange assistance	Assistance in Indian currency from the sales proceeds of U.S. agricultural commodities
		(*Kilowatts*)	(*Million* $)	(*Crores of Rupees*)
1.	Beas	240,000	33.0	—
2.	Bhadra, Mysore	33,000		13.23
3.	Chambal, Madhya Pradesh & Rajasthan	363,000		34.07
4.	Damodar Valley Corporation, Bihar & West Bengal	104,000		11.36
5.	Hirakud, Orissa	360,000	7.9	4.99
6.	Kosi, Bihar	20,000		36.82
7.	Koyna, Maharashtra	540,000		20.51
8.	Kundah, Madras	425,000		7.63
9.	Tungabhadra, Andhra Pradesh & Mysore	99,000		23.44
10.	Rihand, U.P.	300,000	6.0	28.75
	Total	2,484,000	46.9	180.80

*The generating equipment of these projects has been or will be imported by India with the assistance of other friendly countries or with its own foreign-exchange earnings or will be produced locally.

Transportation

The United States has provided dollar grants and loans totalling $317 million [Rs. 237.75 crores] to help India develop its transportation system. In addition, a grant of Rs. 20 crores from PL-480 funds has been extended for roadbuilding.

Railways: U.S. aid to Indian railways totals $259 million [Rs. 194.25 crores]. This has financed the purchase of 100 steam and 345 diesel locomotives and 8,700 railway wagons. In addition, it has helped India to acquire a number of electric locomotives and coaches and to import steel, components and spare parts used in the indigenous fabrication of rolling stock and other equipment.

An important U.S.-aided project is the Diesel Locomotive Factory at Varanasi. The factory has an annual capacity of 150 locomotives.

Another important American-assisted project is the installation of centralized traffic control equipment on sections of the North-Eastern Railway and the North-east Frontier Railway to permit faster movement of trains to and from Assam and the Himalayan border.

Motor Vehicle Production: The United States has extended loans totalling $77.2 million [Rs. 57.90 crores] to three Indian firms to expand their production of motor vehicles.

Aviation: U.S. credits of $36 million [Rs. 27 crores] have helped India to make rapid strides in civil aviation. The money has been used by Air-India to finance in part the purchase of its fleet of Boeing jet-liners. U.S. grants totalling $2.9 million [Rs. 2.18 crores] for improved navigational aids installed at several airports facilitate faster and safer domestic flights.

Development Loans Extended by U.S. Agency for International Development and Its Predecessor, U.S. Development Loan Fund

Date of Agreement or Announcement	Project	Dollars (millions)	Rupee equivalent at current rate of exchange (crores)
Loans Repayable in Rupees			
1. June 23, '58	First Railway Loan	30.0	22.50
2. June 23, '58	For Private Enterprises (road transportation: $25 million; cement industry: $ 5 „; jute industry: $ 5 „)	34.9	26.18
3. Dec. 24, '58	Second Railway Loan	35.0	26.25
4. Dec. 24, '58	Steel Imports for Public Sector (first loan)	17.7	13.28
5. Dec. 24, '58	Equipment for Power Projects	9.5	7.13
6. Dec. 24, '58	Capital Equipment for Private Industries (first loan)	14.9	11.18
7. Dec. 24, '58	Steel Imports for Private Sector	21.7	16.28
8. July 27, '59	Steel Imports for Private and Public Sector Projects (second loan)	19.5	14.63
9. June 30, '60	Sharavathi Hydroelectric Project, Mysore (first loan)	7.2	5.40
10. June 30, '60	Ahmedabad Electricity Co., Gujarat	3.7	2.78
11. June 30, '60	Barauni Thermal Power Project, Bihar	3.6	2.70
12. June 30, '60	Chandrapura Thermal Power Project, Bihar (first loan)	28.1	21.08
13. June 30, '60	Durgapur Thermal Power Project, West Bengal	18.0	13.50
14. June 30, '60	Road Transport Components	13.0	9.75
15. Dec. 5, '60	Kanpur Thermal Power Project, Uttar Pradesh	1.5	1.13
16. Dec. 5, '60	Barapani Hydroelectric Power Project, Assam	1.7	1.28
17. Dec. 5, '60	Capital Equipment for Private Industries	25.0	18.75
18. Dec. 5, '60	Third Railway Loan	50.0	37.50
19. Dec. 5, '60	Steel Imports for Private and Public Sector Projects (third loan)	25.0	18.75

	Date of Agreement or Announcement	Project	Dollars (millions)	Rupee equivalent at current rate of exchange (crores)
20.	Dec. 7, '60	Industrial Finance Corporation (first loan)	9.6	7.20
21.	Dec. 29, '60	Trombay Fertilizer Plant, Maharashtra (first loan)	30.0	22.50
22.	Mar. 23, '61	Industrial Credit & Investment Corporation of India	4.5	3.38
23.	Apr. 10, '61	National Small Industries Corporation	8.8	6.60
24.	Aug. 21, '61	Premier Automobiles Ltd., Bombay (first loan)	7.1	5.33
25.	Aug. 16, '61	Talcher Thermal Power Project, Orissa	33.0	24.75
26.	Aug. 16, '61	Amarkantak [Amlai] Thermal Power Project, Birsinghpur, Madhya Pradesh	7.7	5.78
27.	Aug. 16, '61	Sharavathi Hydroelectric Power Project (second loan)	15.1	11.33
28.	Oct. 26, '61	Import of Non-ferrous Metals	20.0	15.00
29.	June 16, '66	Beas Dam	33.0	24.75
Loans Repayable in Dollars				
1.	Feb. 28, '62	Dhuvaran Thermal Power Station, Gujarat	33.6	25.20
2.	Feb. 28, '62	Premier Automobiles Ltd., Bombay (second loan)	2.9	2.18
3.	Mar. 30, '62	Industrial Finance Corporation (second loan)	20.0	15.00
4.	Apr. 11, '62	Pamba-Kakki [Sabarigiri] Hydroelectric Project, Kerala	20.2	15.15
5.	June 21, '62	General Non-Project Loan for Maintenance Imports (first loan)	199.8	149.85
6.	June 21, '62	Bandel Thermal Power Project, West Bengal	38.0	28.50
7.	June 21, '62	Hindustan Steel Ltd., for Patherdih Coal Washery, Bihar	4.0	3.00
8.	June 28, '62	Fourth Railway Loan	43.0	32.25
9.	June 28, '62	Delhi Cloth Mills Ltd., for a rayon tyre-cord plant at Kotah, Rajasthan	8.1	6.08
10.	Oct. 12, '62	Trombay Power Plant (Tatas), Maharashtra	17.9	13.43
11.	Nov. 2, '62	Ramagundam Thermal Power Project, Andhra Pradesh	8.4	6.30
12.	Dec. 7, '62	Hindustan Motors Ltd. Calcutta (first loan)	15.6	11.70

	Date of Agreement or Announcement	Project	Dollars (millions)	Rupee equivalent at current rate of exchange (crores)
13.	Dec. 7, '62	Tata Engineering & Locomotive Co. Ltd., Jamshedpur, Bihar (first loan)	13.7	10.28
14.	Feb. 25, '63	General Non-Project Loan for Maintenance Imports (second loan)	238.6	178.95
15.	July 27, '63	Napco Bevel Gear of India Ltd. (precision gear plant), Faridabad, Haryana	2.3	1.73
16.	Mar. 8, '63	Indraprastha [Delhi "C"] Thermal Power Station	15.2	11.40
17.	Mar. 8, '63	Satpura Thermal Power Station, Madhya Pradesh	21.1	15.83
18.	Mar. 26, '63	Chandrapura Thermal Power Project, Bihar (second loan)	13.0	9.75
19.	Apr. 21, '63	Fifth Railway Loan	15.9	11.93
20.	May 21, '63	Central Ropeways "F", Jharia, Bihar	7.7	5.78
21.	May 21, '63	Dugda Coal Washery Expansion, Bihar	5.1	3.83
22.	July 1, '63	Tarapur Nuclear Power Station, Maharashtra	75.0	56.25
23.	Feb. 6, '64	National Engineering Industries Ltd., Jaipur, Rajasthan	4.3	3.23
24.	Feb 24, '64	General Non-Project Loan for Maintenance Imports (third loan)	225.0	168.75
25.	June 19, '64	Trombay Fertilizer Plant, Maharashtra (second loan)	7.8	5.85
26.	July 7, '64	Hindustan Motors Ltd., Calcutta (second loan for expanding automobile production)	23.0	17.25
27.	July 7, '64	Hindustan Motors Ltd., Calcutta for production of power shovels)	3.0	2.25
28.	July 7, '64	Tata Engineering & Locomotive Co. Ltd., Jamshedpur, Bihar (second loan	11.8	8.85
29.	Aug. 6, '64	General Non-Project Loan for Maintenance Imports (fourth loan)	50.0	37.50
30.	Aug. 6, '64	Sixth Railway Loan	7.2	5.40
31.	Aug 6, '64	Sharavathi Hydroelectric Power Project, Mysore third loan)	2.4	1.80
32.	Aug. 6, '64	U.S. Consulting Services	2.0	1.50
33.	Jan. 13, '65	Industrial Finance Corporation third loan)	4.0	3.00
34	June 17, '65	Seventh Railway Loan	3.8	2.85

	Date of Agreement of Announcement	Project	Dollars (millions)	Rupee equivalent at current rate of exchange (crores)
35.	June 17, '65	General Non-Project Loan for Maintenance Imports (fifth loan)	190.0	142.50
36.	Jan. 4, '66	Fertilizer Imports (first loan)	50.0	37.50
37.	May 13, '66	General Non-Project Loan for Maintenance Imports (sixth loan)	100.0	75.00
38.	May 25, '66	"Operation Hardrock" (survey for non-ferrous metal deposits)	3.5	2.63
39.	June 1, '66	Dhuvaran Thermal Power Station, Gujarat (second loan)	28.8	21.60
40.	July 8, '66	General Non-Project Loan for Maintenance Imports (seventh loan)	150.0	112.50
41.	June 2, '67	Education Loan	12.0	9.00
42.	May 10, '67	General Non-Project Loan for Maintenance Imports (eighth loan)	132.0	99.00
43.	Oct. 20, '67	General Non-Project Loan for Maintenance Imports (ninth loan)	50.0	37.50
44.	May 15, '68	General Non-Project Loan for Maintenance Imports (tenth loan)	225.0	168.75
45.	June 29, '68	Family Planning Programme	2.7	2.03
46.	July 19, '68	Fertilizer Imports (second loan)	23.0	17.25
47.	Dec. 26, '68	General Non-Project Loan for Maintenance Imports (eleventh loan)	194.0	145.50
48.	Dec. 26, '68	Trombay Fertilizer Plant, Maharashtra (third loan)	37.0	27.75
		Total: Loans Repayable in Dollars	2,361.2	1,770.90
		Loans Repayable in Rupees	528.7	396.53
		Total: Loans Repayable in Rupees and Dollars	2,889.9	2,167.43

U.S. Public Law 480

Food for Peace Programme

India has been the largest recipient of U.S. agricultural commodities under Title I, PL-480. The first Title I agreement was signed with India on August 29, 1956. Since then nine additional agreements and 32 supplemental agreements have been signed. The market value of the commodities (including some ocean transportation costs) in all these agreements and amendments through December 23, 1968, totals $4,388.3 million.

The following table shows the total quantities and dollar values of commodities programmed and actual arrivals since the beginning of the Title I, PL-480, programme in India.

	Agreements Signed Through December 23, 1968		Commodity Arrivals Through Sept. 30, '68
	Programmed Quantity in Thousand Metric Tons[1]	Value in Million Dollars	Approximate Quantity in Thousand Metric Tons[1]
Wheat	48,212.2	2,961.6	45,473.7
Sorghum and Maize	5,242.3	264.4	5,053.0
Rice	1,748.1	208.1	1,760.6
Cotton	3,258.0[2]	374.7	2,571.9[2 3]
Tallow	170.0	28.7	77.8
Tobacco	7.4	17.3	6.6[4]
Nonfat Dry Milk	24.9	4.6	21.0
Soybean/Vegetable Oil	296.7	74.6	239.45[5]
Evaporated Milk	13.0	4.1	14.99
Whole Milk Powder	0.23	0.3	0.23
Cheese (processed)	0.08	0.1	0.10
Tinned Fruit	0.40	0.1	0.42
Total Market Value		3,938.6	
Ocean Transportation		450.4[6]	
Total Including Ocean Transportation		4,388.3	

[1] Programmed quantities are based on prices at time of agreement. Arrivals are based on actual quantities purchased, shipped and received and vary from the programmed amounts with price fluctuations.
[2] Cotton is reported in Thousand Indian Bales (392 lbs. each).
[3] Arrivals through August 31, 1968.
[4] Arrivals through July 31, 1967.
[5] 231.3 soybean oil and 8.1 cottonseed oil.
[6] This figure also included ocean transportation differentials for which the Commodities Credit Corporation is not reimbursed.

Programmed Rupee Uses

The following table shows the programmed currency uses for all Title I rupee repayment agreements and amendments with India through Dec. 23, 1968.

Agreement Dates (as supplemented and amended)	Grants to Government of India	Loans to Private Enterprise	Loans to Government of India	U.S. Government Uses	Total
			1,000 Dollars		
Aug. 29, 1956	54,000	—	226,256	74,300	354,556
June 23, 1958	—	13,819	33,377	8,081	55,277
Sept. 26, 1958	37,500	65,000	129,700	27,600	259,800
Nov. 13, 1959	119,110	14,910	119,110	44,740	297,870
May 4, 1960	577,565	68,555	577,565	146,115	1,369,800
May 1, 1962	—	393	34,977	3,930	39,300
Nov. 20, 1962	—	5,155	87,635	10,310	103,100
Nov. 30, 1962	—	255	4,338	510	5,103
Sept. 30, 1964	—	80,740	911,893	194,727	1,187,360
Feb. 20, 1967	29,700	6,750	87,750	10,800	135,000
June 24, 1967	—	4,390	76,386	7,027	87,800
Sept. 12, 1967	—	3,375	58,725	5,400	67,500
Dec. 30, 1967	—	8,430	146,682	13,488	168,600
Dec. 23, 1968	21,010	4,775	63,030	6,685	95,500
Total	838,885	276,547	2,557,424	553,710	4,226,566
Per cent	19.9	6.5	60.5	13.1	100.0

Long-term Loan Agreements

Agreement Date	Value of Commodities	Ocean Transportation	Total
		1,000 Dollars	
June 24, 1967	22,000	2,200	24,200
Sept. 12, 1967	17,000	2,000	19,000
Dec. 30, 1967	42,100	4,800	46,900
Dec. 26, 1968	64,700	6,900	71,600
Total	145,800	15,900	161,700

Total Value, All Agreements 4,388,266[1]

[1] Equivalent to approximately Rs. 2,365 crores at Rs. 4.76 per dollar till June 6, 1966, and Rs. 7.50 per dollar after June 6, 1966. Total rupee deposits as of November 30, 1968 were Rs. 20.80 billion (Rs. 2,080 crores.)

Grants from U.S. Public Law 480 Sales Proceeds

		Crores of Rs.
Agriculture		
1.	Agricultural Universities Development	0.62
2.	U.P. Agricultural University	1.22
3.	Modern Storage of Foodgrains	14.04
4.	Dairy Development	4.07
5.	Soil and Water Conservation	10.08
6.	Agricultural Refinance Corporation	5.00
7.	Exploration of Groundwater Resources	0.80
Industry and Mining		
8.	River Valley Development (Chambal, Hirakud, Damodar Valley, Mahi Right Bank Canal, Kakrapar, Nagarjunasagar, Kosi, Bhadra, Tungabhadra, Mahanadi Delta Irrigation, Kundah, and Koyna projects)	5.94
9.	National Productivity Council	0.04
10.	Indian Investment Centre	0.63
Transportation		
11.	National Highways	19.60
Labour		
12.	Craftsmen Training	39.46
Health		
13.	Medical Educator Training	7.40
14.	Malaria Eradication	85.15
15.	All-India Institute of Medical Sciences, New Delhi	1.45
16.	Primary Health Centres	10.55
17.	Smallpox Eradication	10.29
18.	Family Planning	8.50
Education		
19.	Indian Institute of Technology, Kanpur	5.20
20.	Higher Technical Education (Regional Engineering Colleges)	16.56
21.	Elementary Education	78.30
22.	Technical Education Institutes	0.12
	Total Grants	325.00

Loans from U.S. Public Law 480 Sales Proceeds

		Crores of Rs.
Agriculture		
1.	Minor Irrigation	126.76
2.	Flood Control	18.66
3.	Soil, Forest, and Water Conservation	21.27
4.	Modern Storage of Foodgrains	2.95
5.	Rural Electrification	106.40
6.	Agricultural Production	6.46
Industry		
7.	River Valley Development	235.90

(1)	Bhadra, Mysore	Rs. 13.23 crores
(2)	Chambal, Rajasthan & Madhya Pradesh	,, 34.07 ,,
(3)	Damodar Valley Corporation, Bihar & West Bengal	,, 11.36 ,,
(4)	Hirakud, Orissa	,, 4.99 ,,
(5)	Kakrapar, Gujarat	,, 4.37 ,,
(6)	Kosi, Bihar	,, 36.82 ,,
(7)	Koyna, Maharashtra	,, 20.51 ,,
(8)	Kundah, Madras	,, 7.63 ,,
(9)	Mahanadi Delta Irrigation, Orissa	,, 14.55 ,,
(10)	Mahi Right Bank Canal, Gujarat	,, 3.92 ,,
(11)	Nagarjunasagar, Andhra Pradesh	,, 66.95 ,,
(12)	Tungabhadra, Andhra Pradesh	,, 23.44 ,,
	Total	Rs. 241.84 crores
	Less Grants	Rs. 5.94 ,,
	Loans	Rs. 235.90 crores

8.	Rihand Valley Hydroelectric Power Project, Uttar Pradesh	8.92
9.	Industrial Development Bank of India	127.50
10.	Industrial Finance Corporation	37.50
11.	Industrial Credit & Investment Corporation of India	25.00
12.	Sharavathi Hydroelectric Power Project, Mysore	34.45
13.	Chandrapura Thermal Power Project, Bihar	16.60
14.	Barauni Thermal Power Project, Bihar	1.31
15.	Sabarigiri Hydroelectric Power Project, Kerala	21.06
16.	Durgapur Thermal Power Project, West Bengal	3.43
17.	Kanpur Thermal Power Project, Uttar Pradesh	0.95
18.	Umiam [Barapani] Hydroelectric Power Project, Assam	6.40

	Crores of Rs.
19. Trombay Fertilizer Plant, Maharashtra	13.43
20. Talcher Thermal Power Project, Orissa	18.74
21. Amarkantak Thermal Power Project, Amlai, Madhya Pradesh	6.67
22. Dhuvaran Thermal Power Project, Gujarat	12.72
23. Bandel Thermal Power Project, West Bengal	8.20
24. Ramagundam Thermal Power Project, Andhra Pradesh	3.70
25. Indraprastha Thermal Power Project, Delhi	15.05
26. Satpura Thermal Power Project, Madhya Pradesh	15.93
Labour	
27. Rural Works Programme	14.70
28. Rural Industrialization	5.15
29. Craftsmen Training	18.85
Health	
30. Water Supply and Drainage	39.81
31. Drinking Water Supply and Local Development Works	6.35
32. National Water Supply and Sanitation	9.15
33. Malaria Eradication	17.14
34. Primary Health Centres	2.00
35. Smallpox Eradication	1.97
Education	
36. Indian Institute of Technology, Kanpur	3.26
37. Higher Technical Education (Regional Engineering Colleges)	13.28
38. Elementary Education	35.79
Community Development	
39. Community Development and National Extension Schemes	49.68
40. Urban Redevelopment and Slum Clearance	4.40
Transportation	
41. Development of Major Ports	11.36
Total	1,128.85

Cooley Fund

The Cooley Amendment to U.S. Public Law 480 (named after Mr. Harold D. Cooley, former chairman of the Committee on Agriculture of the U.S. House of Representatives) provides that a portion of the local currency proceeds from the sale of American agricultural commodities shall be made available for lending in the private sector to two categories of borrowers:

1) American firms or their subsidiaries operating in the host country (India), or indigenous (Indian) firms having an affiliation with an American firm;

2) Indigenous firms of the host country which have no American affiliation but are facilitating the disposal of American agricultural products, e.g., local private warehouses storing grain or flour mills processing grain.

The following loans have been extended from the Cooley Fund. The name of the U.S. affiliate and the principal products manufactured by the Indian firm are shown in parentheses.

1.	Agricultural Association Ltd., New Delhi (DeKalb Agricultural Association Inc., DeKalb, Illinois) (high-yielding seeds)	Rs.	2,800,000
2.	American Universal Electric (India) Ltd., Faridabad, Haryana (Universal Electric Co., Owosso, Michigan) (fractional-horsepower electric motors)	Rs.	2,100,000
3.	Arbor Acres Farm India Pvt. Ltd., Talegaon, Maharashtra (Arbor Acres Farm Inc., Glastonbury, Connecticut) (poultry breeding)	Rs.	1,250,000
4.	Bharat Steel Tubes Ltd., Ganaur, Haryana (Abbey Etna Machine Co., Perrysburg, Ohio) (steel tubes)	Rs.	2,500,000
5.	Borosil Glass Works Ltd., Andheri, Maharashtra (Corning Glass Works, New York) (glassware)	Rs.	7,143,000
6.	Chemicals & Plastics India Ltd., Mettur, Madras (B.F. Goodrich Chemical Co., Cleveland, Ohio) (polyvinyl chloride plastics)	Rs.	3,261,000
7.	Corn Products India Pvt. Ltd., Bombay (Corn Products Co., New York) (starch, glucose, dehydrated food)	Rs.	2,388,000
8.	Coromandel Fertilizers Ltd., Visakhapatnam, Andhra Pradesh (California Chemicals Co., San Francisco; and International Minerals & Chemicals Corp., Skokie, Illinois) (fertilizers)	Rs.	146,735,000
9.	Cutler-Hammer India Ltd., Calcutta (Cutler-Hammer Inc., Milwaukee, Wisconsin) (electrical relays, thermostats)	Rs.	3,000,000
10.	Cyanamid India Ltd., Bombay (American Cyanamid Co., New York) (antibiotics)	Rs.	2,500,000
11.	East India Hotels Ltd., New Delhi (Intercontinental Hotels Corp., New York) (construction of hotel in New Delhi)	Rs.	7,619,000

12.	Elpro International Ltd., Bombay (General Electric, New York) (lightning arresters, X-ray equipment, magnets)	Rs.	4,000,000
13.	Everest Refrigerants Ltd., Bombay (Technical Enterprises Inc., New York) (refrigerant gases and aerosol dispensers)	Rs.	6,000,000
14.	Ex-Cell-O (India) Pvt. Ltd., Bombay (Ex-Cell-O Corp., Detroit, Michigan) (machine-tool parts)	Rs.	2,000,000
15.	Ferro Coating & Colours Ltd., Calcutta (Ferro Corp., Cleveland, Ohio) (colours, pigments, and fritted elements for the fertilizer industry)	Rs.	2,500,000
16.	Frick India Ltd., New Delhi (Frick Co., Waynesboro, Pennsylvania) (refrigeration equipment)	Rs.	2,500,000
17.	Gabriel India Pvt. Ltd., Mulund, Bombay (Gabriel Co., Cleveland, Ohio) (shock absorbers)	Rs.	1,900,000
18.	Globe Auto Electricals Ltd., Bombay (Eltra Corp., Brooklyn, NewYork) (automotive electrical equipment)	Rs.	1,000,000
19.	Goodyear Tyre & Rubber Co. of India Ltd., Ballabgarh, Haryana (Goodyear Tire & Rubber Co., Akron, Ohio) (rubber products)	Rs.	37,500,000
20.	Graphite India Ltd., Calcutta (Great Lakes Carbon Corp., New York) (graphite electrodes, anodes, and carbon products)	Rs.	10,000,000
21.	Harig India Pvt. Ltd., Ghaziabad, U.P. (Harig Mfg. Corp., Chicago) (tools, dies, gauges)	Rs.	1,485,000
22.	Herdillia Chemicals Ltd., Thana, Maharashtra (Hercules Powder Co. Inc., Wilmington, Delaware) (heavy organic chemicals)	Rs.	26,484,000
23.	Hindustan Aluminium Ltd., Renukoot, U.P. (Kaiser Aluminum & Chemicals Corp., Oakland, California) (aluminium)	Rs.	50,000,000
24.	I.A. & I.C. Private Ltd., Bombay (Lapic Inc., Philadelphia) (sulphur grinding plant)	Rs.	500,000
25.	Indabrator Ltd., Bombay (Wheelabrator Corp., Mishawaka, Indiana) (air blast and shot blast equipment and dust collectors)	Rs.	1,428,000
26.	Indian Graphic Arts Equipment Co. Ltd., Coimbatore, Madras State (Miehle-Goss-Dexter Inc., Chicago) (graphic-arts equipment)	Rs.	2,360,000
27.	Indofil Chemicals Ltd., Bombay (Rohm & Haas Co. Inc., Philadelphia) (fungicides and plasticizers)	Rs.	2,975,000
28.	International Fisheries Ltd., Bombay (Indo-American Seafood Corp., New York) (seafood)	Rs.	2,000,000
29.	Kirloskar-Cummins Ltd., Poona, Maharashtra (Cummins Engine Co., Columbus, Indiana) (engines)	Rs.	12,500,000

30.	Lal-Roe Measuring Tools Pvt. Ltd., Bombay (Justus Roe & Sons Inc., New York) (steel measuring tapes)	Rs.	1,300,000
31.	Lube India Ltd., Bombay (ESSO Standard Oil of New Jersey) (petroleum products)	Rs.	64,345,000
32.	Madras Rubber Factory Ltd., Madras (Mansfield Tire & Rubber Co., Mansfield, Ohio) (rubber tyres)	Rs.	15,000,000
33.	Mandya Paper Mills Ltd., Belagula, Mysore (Parsons & Whittemore, New York) (paper)	Rs.	11,700,000
34.	McNally-Bird Engineering Co. Ltd., Kumaradhubi, Bihar (McNally-Pittsburg Mfg. Co., Pittsburg, Kansas) (coal washeries and allied equipment)	Rs.	10,000,000
35.	Modipon Ltd., Modinagar, U.P. (Rohm & Haas Co. Inc., Philadelphia) (nylon filament yarn)	Rs.	18,200,000
36.	Mysore Cements Ltd., Ammasandra, Mysore (Kaiser Industries Corp., Oakland, California) (cement)	Rs.	34,250,000
37.	Mysore Lamp Works Ltd., Bangalore (General Electric, New York) (electric lighting equipment)	Rs.	3,000,000
38.	Napco Bevel Gear of India Ltd., Faridabad, Haryana (Napco Industries Inc., Minneapolis, Minnesota) (gears, joints, and allied parts)	Rs.	8,000,000
39.	Otis Elevator of India Ltd., Bombay (Otis Elevator Co., New York) (elevators)	Rs.	2,000,000
40.	Pibco Ltd., Durgapur, West Bengal (Johns-Manville Corp., New York) (insulating materials)	Rs.	4,000,000
41.	Precision Bearings India Ltd., Baroda, Gujarat (Norma-Hoffman Bearings Corp., Stamford, Connecticut) (ball and cylindrical bearings)	Rs.	4,500,000
42.	Premier Tyres Ltd., Kalamaseri, Kerala (Dayton Rubber Co., Dayton, Ohio) (rubber tyres)	Rs.	3,000,000
43.	Raymon Engineering Works Ltd., Calcutta (World Investments Inc., Wichita, Kansas) (spiral welded pipes)	Rs.	21,400,000
44.	Renusagar Power Co. Ltd., Renukoot, U.P., (Kaiser Aluminum & Chemical Corp., Oakland, California) (thermal power station)	Rs.	45,000,000
45.	Richardson Hindustan Ltd., Bombay (Richardson Merrell Inc., New York) (pharmaceuticals)	Rs.	6,250,000
46.	Rockwell India Ltd., Udhna, Gujarat (Rockwell Mfg. Co., Pittsburgh, Pennsylvania) (power tools)	Rs.	1,690,000
47.	Semiconductors Ltd., Bombay (Raytheon Co. Inc., Lexington, Massachusetts) (transistors and diodes)	Rs.	1,350,000
48.	Seshasayee Paper & Board Ltd., Erode, Madras (Parsons & Whittemore, New York) (bagasse pulp and paper)	Rs.	20,000,000

49.	Shama Forge Co. Ltd., Bhopal, Madhya Pradesh (Kropp Forge Co., Chicago) (steel forgings)	Rs.	4,750,000
50.	Shavo-Norgren (India) Pvt. Ltd., Bombay (C.A. Norgren Co., Littleton, Colorado) (pressure regulators, air filters, and air lubricators)	Rs.	800,000
51.	Sylvania & Laxman Ltd., New Delhi (Sylvania International, New York) (fluorescent tubes and mercury-vapour lamps)	Rs.	5,000,000
52.	Synbiotics Ltd., Ahmedabad, Gujarat (Olin Mathieson International, New York) (antibiotics and fine chemicals)	Rs.	13,440,000
53.	Synthetics & Chemicals Ltd., Bareilly, U.P. (Firestone Tire & Rubber Co., Akron, Ohio) (synthetic rubber)	Rs.	65,000,000
54.	Taylor Instrument Co. India Ltd., Ballabgarh, Haryana (Taylor Instrument Co. Inc., Rochester, New York) (process control instruments)	Rs.	1,500,000
55.	Tractor Engineers Ltd., Bombay (Caterpillar Overseas Inc., Peoria, Illinois) (spare parts for tractors)	Rs.	6,000,000
56.	Union Carbide (India) Ltd., Calcutta (Union Carbide Corp., New York) (chemicals and plastics)	Rs.	21,600,000
57.	United Carbon India Ltd., Bombay (United Carbon Co., Ashland, Kentucky) (carbon black)	Rs.	26,051,000
58.	Vazir Glass Works Ltd., Bombay (Wheaton Glass Co., Millville, New Jersey) (glass manufacturing)	Rs.	2,500,000
59.	Vickers Sperry of India Ltd., Bombay (Sperry Rand Corp., New York) (hydraulic equipment and accessories)	Rs.	2,000,000
60.	Victor Gasket India (Pvt.) Ltd., Mulund, Bombay (Victor Mfg. & Gasket Co., Chicago) (gaskets)	Rs.	750,000
61.	Warner-Hindustan Ltd., Bombay (Warner-Lambert Pharmaceutical Co., Morris Plains, New Jersey) (pharmaceuticals and chemicals)	Rs.	8,750,000
62.	Wyeth Laboratories Pvt. Ltd., Bombay (American Home Products Corp., New York) (steroid compounds and hormones)	Rs.	1,700,000
63.	Wyman-Gordon Ltd., Bombay (Wyman-Gordon Co., Worcester, Massachusetts) (precision forgings)	Rs.	5,500,000
64.	York India Ltd., Faridabad, Haryana (Borg-Warner Corp., Chicago) (air-conditioning and refrigeration equipment)	Rs.	1,500,000
65.	Searle (India) Ltd., Bombay (G.D. Searle & Co., Chicago) (oral contraceptives and other drugs)	Rs.	8,000,000
	Total	Rs.	798,254,000

U.S.-Uses Rupees

PL-480 agreements between India and the United States provide for a sum of approximately Rs. 300 crores to be reserved for U.S. uses.

In spending U.S.-owned rupees, the United States is careful not to add to inflationary forces in India or to purchase an undue proportion of goods in scarce supply.

U.S.-owned rupees are used to meet the expenses of the U.S. Government in India. These expenses can be met only after the U.S. Congress has authorized them.

But expenditure from U.S-owned rupee funds is not confined to this purpose. A portion is used to finance the U.S. aid programme in Nepal and a small part is converted into foreign currencies for agricultural market development and educational exchange programmes in other countries.

A considerable share of U.S.-owned rupees is being spent on programmes which are of direct benefit to India. These include:

Educational Exchange: The Fulbright Programme, under which this exchange is conducted, benefits Indian scholars travelling to the United States and American scholars coming to this country.

Low-cost Textbooks: More than 700 titles in physics chemistry, biology, aeronautics, economics, and other subjects for the use of Indian college students have been issued at one-third to one-fourth of the American retail price. The rest of the cost is subsidized from U.S.-owned rupees. All books are chosen in consultation with the Indian Ministry of Education.

Procurement of Indian Books and Periodicals: U.S.-owned rupees are also utilized for supplying Indian books, newspapers, magazines, and documents to the U.S. Library of Congress and 18 other libraries in a number of American universities and one city. This helps spread knowledge of India in the U.S.

American Studies in India: Some U.S.-uses rupees provide an opportunity for many Americans, outside the educational exchange under the Fulbright Programme, to learn more about India. A good example of this scholarly pursuit is the American Institute of Indian Studies, Poona.

Research: U.S.-owned rupees also have financed research in agricultural, medical, educational, and social sciences undertaken by a number of Indian universities and other institutions. The results of these scientific activities benefit not only India but also the United States and other nations.

Research activities which have received grants range from an investigation of problems in rehabilitating rural blind women to a survey of beneficial parasites and predators of agricultural crop pests. In the field of agricultural research alone, some 220 active grants have been made. Many of them concern problems whose solution will have an immediate application in increasing agricultural production in India.

Expenditures from U.S.-Uses Rupees

(Through September 30, 1968)

		(Crores)	Totals (Crores)
1.	**Expenditure of the U.S. Embassy on:**		
	(i) Administrative and programme expenditures	49.99	
	(ii) Educational exchange programme in India	10.59	
	(iii) Agricultural programme in India	8.33	68.91
2.	Expenditure of the USAID Mission		11.55
3.	Expenditure of the U.S. Information Service		24.44
4.	Expenditure of the Peace Corps		6.22
5.	Aid to Nepal		40.19
6.	Aid to Burma		2.18
7.	**Conversions into foreign currencies:**		
	(i) for agricultural market development	5.67	
	(ii) for educational exchange	7.17	
	(iii) for sale to American tourists	0.13	
	(iv) for sale to U.S. citizens and foundations	4.36	17.33
	Total Expenditures		170.82

U.S. Export-Import Bank Loans

	Name	Amount in Dollars	Rupee equivalent at current rate of exchange (Crores)	Date authorized or signed
1.	Sundatta Foods & Fibres Ltd., Bombay	60,000	0.05	Mar. 29, '57
2.	National Rayon Corporation, Kalyan, Maharashtra	1,800,000	1.35	Oct. 5, '57
3.	First Line of Credit to Government of India	150,000,000	112.50	Feb. 27, '58
4.	Hindustan Aluminium Ltd., Renukoot, Uttar Pradesh	12,968,000	9.73	Jan. 7, '60
5.	Air-India (first loan)	4,080,000	3.06	Sept. 8, '60
6.	Second Line of Credit to Government of India	50,000,000	37.50	Dec. 23, '60
7.	Orient Paper Mills Ltd., Amlai, Madhya Pradesh	18,497,000	13.87	Jan. 6, '61
8.	Air-India (second loan)	6,936,000	5.20	June 8, '61
9.	East India Hotels Ltd., New Delhi	717,000	0.54	July 13, '61
10.	Third Line of Credit to Government of India	25,000,000	18.75	Apr. 19, '62
11.	Union Carbide India Ltd., Calcutta	7,207,000	5.40	Jan. 17, '63
12.	Hindustan Aluminium Ltd., Renukoot, Uttar Pradesh (second loan)	4,750,000	3.56	Mar. 28, '63
13.	Varanasi Diesel Locomotive Factory (Indian Railways), Uttar Pradesh (first loan)	19,000,000	14.25	Mar. 28, '63
14.	Bharat Forge Co. Ltd., Poona, Maharashtra	3,908,000	2.93	Apr. 9, '63
15.	Coromandel Fertilizers Ltd., Visakhapatnam, Andhra Pradesh	25,875,000	19.41	Sept. 25, '63
16.	Mysore Acetate Chemical Co. Ltd., Mandya, Mysore	2,077,000	1.56	Nov. 27, '63
17.	Chemicals & Plastics (India) Ltd., Mettur (Madras) and Bombay	3,142,000	2.36	Dec. 11, '63
18.	Fourth Line of Credit to Government of India	25,000,000	18.75	June 11, '64
19.	Hindustan Aluminium Ltd., Renukoot, Uttar Pradesh (third loan)	10,338,000	7.75	July 30, '64
20.	Central Pulp Mills Ltd., Fort Songhad, Gujarat	6,825,000	5.12	Aug. 20, '64
21.	Varanasi Diesel Locomotive Factory (Indian Railways), Uttar Pradesh (second loan)	17,000,000	12.75	Jan. 14, '65
22.	Herdillia Chemicals Ltd., Thana, Maharashtra	3,340,000	2.51	Apr. 6, '65
23.	Varanasi Diesel Locomotive Factory (Indian Railways), Uttar Pradesh (third loan)	12,750,000	9.56	Oct. '66
24.	Indian Aluminium Co. (for its factory at Belgaum, Mysore)	2,000,000	1.50	Mar. '67
25.	Fifth Line of Credit to Government of India	20,000,000	15.00	June 3, '68
26.	Air-India (third loan)	25,000,000	18.75	June 27, '68
	Total	458,270,000	343.70	