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REPORT TO THE COMMITTEE ON INTERNATIONAL RELATIONS HOUSE OF REPRESENTATIVES

LM097025

U.S. Financial Assistance In The Development Of Foreign Nuclear Energy Programs

Multiagency

BY THE COMPTROLLER GENERAL OF THE UNITED STATES

ID-75-63

MAY 28, 1975

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-181963

The Honorable Thomas E. Morgan
Chairman, Committee on International Relations
House of Representatives

Dear Mr. Chairman:

In response to your July 30, 1974, request, we are currently reviewing in depth international agreements for peaceful cooperation in nuclear energy. As agreed with your office, we are providing interim reports on the specific issues outlined in your request.

This report--our second--provides information on U.S. financial assistance to foreign countries under the international nuclear agreements. The first interim report related to U.S. uranium enrichment services needed to fuel foreign and domestic reactors (ID-75-45, dated March 4, 1975).

The Atomic Energy Act of 1954 (42 U.S.C. 2011) provides that U.S. funds may be used for a program to encourage widespread participation in the development and utilization of atomic energy for peaceful purposes and to make available to cooperating nations the benefits of peaceful applications of atomic energy. The international activities of this program are carried out under the terms of agreements for cooperation. As of December 31, 1974, there were agreements in effect involving 29 countries; the International Atomic Energy Agency; and the European Atomic Energy Community, generally referred to as EURATOM.

Under these agreements U.S. private industry has sold nuclear reactors and equipment and the Atomic Energy Commission 1/ has provided special nuclear material and services not available from the U.S. private sector. Since the beginning of the international program, the United States has exported billions of dollars' worth of nuclear-related goods and services.

1/ The Energy Research and Development Administration and the Nuclear Regulatory Commission assumed the responsibilities of the Atomic Energy Commission on January 19, 1975.

In fiscal year 1974 the United States exported about $400 million worth of uranium enrichment services, special nuclear material, and nuclear-related materials. No precise data is available on current exports of nuclear plants and equipment. In June 1974, however, the Department of Commerce estimated, on the basis of Export-Import Bank data, that the current annual export value of nuclear plants and related equipment was in the vicinity of $1 billion.

The U.S. Government has been involved in the financial arrangements for a great many of the U.S. nuclear exports. This involvement has taken many forms, including loans; grants; loan guarantees; gifts; deferred payment plans; lease arrangements; research contract grants; and the financing of international training courses, schools, symposia, and conferences. The financing has been accomplished under various programs conducted by several agencies. Presently, no single Government agency or office maintains financial information on all exported nuclear equipment and material.

We could not obtain financial information on an individual agreement basis because the agencies involved did not maintain information on this basis. In addition, information on the financial participation of the private sector is not readily available within the Government. This precluded us from presenting the information in an agreement-by-agreement format; however, we have compiled available information on U.S. financial assistance that we could identify on an individual agency basis. A summary of U.S. Government financial participation is shown in appendix II.

U.S. banks and commercial lending institutions, as well as companies supplying nuclear equipment abroad, have also participated in arranging financial packages for foreign nuclear customers. It should be noted that foreign governments and utilities have had to invest substantial funds of their own towards developing their civil nuclear energy programs.

International lending institutions to date have not been significantly involved in financing nuclear projects, although the World Bank did make a $40 million loan at 6-percent interest to Italy in 1959 for the SENN nuclear power project.

U.S. Government financial assistance to foreign countries or international organizations under agreements for cooperation has included the following:

--Under the Atoms for Peace program from 1953 through 1962, 26 countries received about $9 million in grants for research reactors. The amount of each grant was limited to the lesser of half the reactor cost or $350,000. In addition, 19 countries received $2.7 million in research equipment grants. (See app. III.)

--The Agency for International Development, through its capital assistance, technical assistance, and program assistance programs, has provided at least $83.3 million in financial assistance to 27 foreign countries. This assistance included a $72 million loan to India for construction of the Tarapur nuclear power station, the only nuclear power project financed by the Agency for International Development. (See app. IV.)

In July 1974, however, Egyptian representatives approached the Agency for International Development for assistance in financing the equipment for a nuclear power project in Egypt. The Agency for International Development showed little interest in this proposal but discussed financing the nuclear fuel for the project. All negotiations ended with passage of the Foreign Assistance Act of 1974 (Public Law 93-559, Dec. 30, 1974). This act forbids the use of funds authorized under the act for the construction of, the operation or maintenance of, or the supply of fuel for any nuclear power plant in Egypt or Israel which has been approved under an agreement for cooperation between the United States and either country.

--From 1954 through 1974, the Atomic Energy Commission provided foreign countries about $342,000 in direct financial assistance, plus indirect assistance, for the use or purchase of special nuclear materials. The $342,000 in direct assistance was provided by the Atomic Energy Commission through the waiving of use charges on leased nuclear-related material. Through four deferred-payment fuel contracts, the Atomic Energy Commission also indirectly assisted foreign customers. The deferred payment contracts

(three with the European Atomic Energy Community and one with India) permitted the postponement of principal repayment for 10 years. During that period, however, interest was charged on the outstanding balance. (See app. V.)

--The Export-Import Bank of the United States has been the largest U.S. source of financial assistance to foreign countries for nuclear energy programs. From 1958 through 1974, the Bank authorized about $2.14 billion in loans for foreign nuclear energy development. This amount included $2.10 billion for the construction and/or fueling of 42 nuclear power projects and $32 million for 5 nuclear training centers, 2 purchases of heavy water, 1 research reactor, and 1 nuclear engineering study. In addition, the Bank has extended approximately $736 million in financial guarantees to private sources that participated with the Bank in financing 24 of these foreign nuclear energy projects. As of March 19, 1975, the Bank had one direct loan of approximately $79 million pending for a nuclear power project in South Korea. (See app. VI.)

--U.S. financial assistance to the International Atomic Energy Agency totaled about $76 million from 1958 to 1974. This assistance included payments of $54.2 million for assessments for the International Atomic Energy Agency's regular budget support, $10.7 million in voluntary contributions, $9.3 million in gifts-in-kind, $1.1 million in research grants, and $.7 million in gifts of special nuclear material. In addition, the Arms Control and Disarmament Agency conducts and funds research in the United States which contributes to the development and improvement of the International Atomic Energy Agency safeguards program. Since 1968 the Arms Control and Disarmament Agency has awarded about $3.3 million in contracts to U.S. private contractors or other Government agencies for this research. (See app. VII.)

The United States also has been involved in other programs or activities which have lent financial support to foreign countries and international organizations for spreading the peaceful application of atomic energy. These efforts

have included (1) a joint U.S.-European Atomic Energy Community research program, for which the United States contributed $28 million, to improve the performance of light-water reactors, (2) cooperative U.S.-Canadian research on heavy-water reactors, which received $6 million in U.S. funding, (3) international nuclear training and educational programs, and (4) international conferences and exhibits.

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Information in this report was obtained from records and discussions with officials at the Energy Research and Development Administration, the Export-Import Bank of the United States, the Agency for International Development, the United States Arms Control and Disarmament Agency, the Department of Commerce, and the Washington National Records Center. We did not contact private concerns to determine their financial participation in nuclear energy exports, but we have included such information as was readily available from Government sources.

As requested by your office, we did not obtain formal agency comments; however, we discussed the report with cognizant officials of the agencies involved and they generally agreed with its contents.

We do not plan to distribute this report further unless you agree or publicly announce its contents.

Sincerely yours,

Comptroller General
of the United States

APPENDIX I

Congress of the United States
Committee on Foreign Affairs
House of Representatives
Washington, D.C. 20515

July 30, 1974

The Honorable Elmer B. Staats
Comptroller General of the United States
Washington, D.C.

Dear Mr. Staats:

As you may know, the Committee on Foreign Affairs has directed its Subcommittees on International Organizations and Movements and the Near East and South Asia to conduct a series of hearings on foreign policy implications of the export of nuclear technology to the Middle East. In addition to that inquiry, the full committee has pending before it a resolution of inquiry (H. Res. 1189 and 1219) requesting the President to furnish the House of Representatives certain information regarding the proposed nuclear agreements with Egypt and Israel. Finally, apart from the Committee's ongoing deliberations in this area, an amendment to the Atomic Energy Act which would require that such proposed nuclear agreements be referred to the House Foreign Affairs and Senate Foreign Relations Committees for their comments and recommendations will be offered when H.R. 15582, enabling Comgress to approve or disapprove nuclear agreements for peaceful cooperation, is considered by the full House.

In connection with these activities, the Committee will be in need of a broad range of information in the field of nuclear agreements. I would like to request, on behalf of the Committee, that the General Accounting Office undertake an in-depth study of the international agreements for peaceful cooperation in nuclear energy both entered into and currently proposed by the United States.

It is my understanding that the GAO has already initiated a survey in this area with emphasis on the role of the International Atomic Energy Agency. In addition to this aspect of the agreements, the committee is also interested in the GAO's analysis of the following issues:

1. The effectiveness of bilateral safeguards imposed by the United States in agreements presently in force;

2. The additional safeguards proposed by the United States with regard to the proposed agreements with Egypt and Israel;

3. The financial arrangements for such agreements; and

4. The decision to enter into provisional atomic fuel supply contracts with Egypt and Israel when domestic requests for such fuel are being turned down by the Atomic Energy Commission.

It would be appreciated if the Committee were kept informed about the progress of this study. The staff of the Committee will be available to consult with your staff with regard to the development of the requested study.

With best wishes, I am

Sincerely yours,

Chairman

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APPENDIX II

U.S. GOVERNMENT ASSISTANCE

UNDER INTERNATIONAL AGREEMENTS

FOR COOPERATION IN THE CIVIL USES OF ATOMIC ENERGY (note a)

Type of assistance	Number of countries involved	Reactors or equipment	Special nuclear materials	Other	Total value
					(000 omitted)
Atoms For Peace program (1953-62):					
Research reactor grants	26	X			$ 8,950
Research equipment grants	19	X			2,730
Agency for International Development (1962-74):					
Capital assistance loan	1	X			71,772
Capital assistance grants	2			X	1,396
Technical assistance grants	27		X	X	6,276
Program assistance loans and grants (note b)	5	X	X		3,904
Atomic Energy Commission assistance to foreign countries (1954-74):					
Deferred sales	3		X		88,761
Lease charges waived	(c)			X	342
Export-Import Bank (1958-74):					
Loans	15	X	X	X	2,136,535
Guarantees	10	X	X	X	736,331
Contributions to international Atomic Energy Agency (1958-74):					
Regular U.S. assessment					54,208
Voluntary cash contributions to operational budget					10,730
Gifts-in-kind					9,255
U.S. International Atomic Energy Agency research contracts					1,145
Voluntary gifts of special nuclear material					713
U.S. Arms Control and Disarmament Agency research contracts					3,344

a/ Excludes research and development costs shared with the European Atomic Energy Community and Canada and international nuclear training and educational programs, conferences, and exhibits.

b/ For fiscal years 1969-74 only.

c/ Not readily available.

ATOMS FOR PEACE PROGRAM

The Atoms for Peace program, initiated in 1953, marked the beginning of U.S. assistance to foreign countries for development of nuclear energy programs. The United States offered incentives to other countries for peaceful nuclear development in the form of research reactor grants and research equipment grants. Grant funding was authorized under the Mutual Security Act of 1956 (Public Law 726, 84th Cong.).

The research reactor grant program, which began in 1956, was administered by the Atomic Energy Commission and was restricted to countries or international organizations which had entered into agreements for cooperation with the United States. Grants were limited to the lesser of half the reactor project cost or $350,000. A total of 26 foreign countries received about $9 million for research reactor development.

In 1958 the Atoms for Peace program began providing equipment grants to foreign countries for nuclear training and research. Administered by the Atomic Energy Commission with State Department coordination, 26 such grants totaling $27 million were made to 19 foreign countries.

With repeal of the Atoms for Peace provision of the Mutual Security Act in 1961, both the reactor and equipment grant programs were terminated.

APPENDIX III

ATOMS FOR PEACE PROGRAM

RESEARCH REACTOR GRANTS

FISCAL YEARS 1956-62

Country	Power	Manufacturer	Estimated project cost (millions)	Amount	Fiscal year awarded
Argentina	5 mW	Argentine National Atomic Energy Commission	$ -	$ 350,000	1962
Austria	5 mW	American Machine & Foundry	4.0	350,000	1958
Belgium	25 mW	Centre d'Etudes de l'Energie Nucleaire	10.01	350,000	1958
Brazil	5 mW	Babcock and Wilcox	1.3	350,000	1956
China (Taiwan)	1 mW	International General Electric	1.0	350,000	1958
Colombia	10 kW	American Machine & Foundry	-	350,000	1962
Denmark	5 mW	Foster-Wheeler	1.4	350,000	1956
Greece	1 mW	American Machine & Foundry	1.3	350,000	1958
Indonesia	100 kW	General Atomic	0.8	350,000	1961
Iran	5 mW	American Machine & Foundry	4.8	350,000	1962
Israel	1 mW	American Machine & Foundry	1.4	350,000	1958
Italy	5 mW	American Car & Foundry	3.6	350,000	1958
Japan	10 mW	American Machine & Foundry	1.5	350,000	1957
Korea	100 kW	General Atomic	1.1	350,000	1959
Netherlands	20 mW	American Car & Foundry	3.9	350,000	1956
Norway	10 kW	Norstom	0.8	350,000	1958
Pakistan	5 mW	American Machine & Foundry	3.5	350,000	1960
Portugal	1 mW	American Machine & Foundry	1.0	350,000	1957
Spain	3 mW	International General Electric	1.0	350,000	1956
Sweden	30 mW	American Car & Foundry	4.3	350,000	1958
Thailand	1 mW	Curtiss-Wright	0.82	350,000	1959
Turkey	1 mW	American Machine & Foundry	2.88	350,000	1960
Venezuela	3 mW	International General Electric	5.0	350,000	1957
Vietnam	100 kW	General Atomic	0.75	350,000	1959
West Germany	1 mW	American Machine & Foundry	3.1	350,000	1958
Yugoslavia	100 kW	General Atomic	-	200,000	1961
Total				$8,950,000	

APPENDIX III

ATOMS FOR PEACE PROGRAM

RESEARCH EQUIPMENT GRANTS

FISCAL YEARS 1958-62

Country	Fiscal year awarded	Amount (note a/)	Equipment
Argentina	1959	$65,771	Cobalt-60 teletherapy unit, medical radioisotope research and training laboratory (University of Buenos Aires and Rivadavia Hospital)
	1959	5,640	Cobalt-60 agricultural irradiation facility (Institute of Applied Botany, Castelar)
	1962	40,500	Nuclear and solid state physics equipment (La Plata University)
Brazil	(a)	(a)	Subcritical assembly (Aeronautical Institute of Technology)
	1962	2,250	Three polonium-beryllium sources (Aeronautical Institute of Technology)
	1962	12,000	Cobalt-60 irradiator (University of Brazil)
	(a)	(a)	Agricultural radiation facilities (Nuclear Energy Commission)
Chile	1959	57,853	General radioisotope laboratory, medical radioisotope research and training laboratory (University of Chile and Catholic University of Chile)
China (Taiwan)	1959	97,521	General radioisotope equipment and other equipment for a nuclear engineering laboratory (National Tsing Hua University)
Colombia	1959	51,523	Cobalt-60 teletherapy unit, medical radioisotope research and training laboratory (Nuclear Energy Institute)
Greece	1958	126,761	Subcritical assembly (Democritus Nuclear Research Center)
Guatemala	1959	45,174	Medical research and clinical radioisotope laboratory and cobalt-60 teletherapy unit (National Nuclear Energy Commission, Roosevelt Hospital, and Guatemala Cancer Institute)
India	1962	112,300	Liquid scintillation counting system, beta ionization chamber, centrifuges, spectrophotometer, and radioisotopes (Tata Memorial Hospital, Radiation Medical Center)
	(a)	(a)	Gamma unit and fly sterilization facility (Department of Atomic Energy)
Ireland	1959	249,252	General radioisotope training research laboratory and two cesium-137 irradiation facilities (Trinity College, University of Dublin)
	1959	66,973	General radioisotope training laboratory, general radioisotope training and research equipment, and a subcritical assembly--including source material (University of Cork and University of Dublin)
Israel	(a)	(a)	Equipment for "hot laboratory" (Nahal Soreq Nuclear Research Establishment)
Italy	1958	5,500	Cobalt-60 agricultural irradiation unit (Frascati Center National Laboratory and Rome Nuclear Center)
Korea	(a)	(a)	Equipment for medical, general radioisotope, and agricultural research and training laboratories (Korean Office of Atomic Energy)
Lebanon	1959	160,760	Low-temperature research equipment, general radioisotope equipment, and cobalt-60 teletherapy
Mexico	1962	159,080	3-Mev linear accelerator (National Autonomous University of Mexico)
New Zealand	1959	297,952	Radioisotope laboratory, multichannel analyzer, subcritical assembly, mass spectrometer, etc. (Department of Scientific and Industrial Research, University of Auckland, University of Canterbury)
Peru	1959	59,511	General radioisotope training laboratory and medical radioisotope research and training laboratory (Junta de Control de Energia Atomica, National University of Engineering and Workman's Hospital)
Turkey	(a)	(a)	Fuel for subcritical facility (University of Ankara)
Uruguay	1958	36,039	Biochemical laboratory, medical diagnostic laboratory, and cobalt-60 teletherapy laboratory (National Atomic Energy Commission-University of the Republic)
Yugoslavia	1961	150,000	"Hot laboratory" equipment (Yugoslavia Federal Commission for Nuclear Energy-Boris Kidric Institute)
Total		$2,729,690	

a/ Since these grants were awarded many years ago, information on some individual grants was not readily available; however, the total amount of all grants under this program was available.

AGENCY FOR INTERNATIONAL DEVELOPMENT

The Agency for International Development, under authority of the Foreign Assistance Act of 1961, as amended (22 U.S.C. 2151), has provided 27 foreign countries at least $83.3 million in loans and grants for peaceful uses of nuclear energy. This amount has included $73.2 million in capital assistance, $6.3 million in technical assistance, and $3.9 million in program assistance funds.

Under its capital assistance program, the Agency has provided funds for one power reactor project and two nuclear research projects. Technical assistance grants have been used in such fields as safety training, nuclear medicine training, and agricultural use of atomic energy. Program assistance funds, provided for a country's general budgetary support, have been used in some cases by the recipient country to import nuclear reactor parts and nuclear materials.

India has been by far the largest recipient of Agency assistance, receiving about $76.3 million in loans and grants. Included in this amount is a $71.8 million capital assistance loan for the Tarapur nuclear power project--the only nuclear power project financed by the Agency. This loan was authorized in June 1963 at a 7-1/2-percent interest rate with principal repayments delayed for 10 years after the first disbursement. As of December 31, 1974, India had paid $4.2 million in interest and $1.1 million in principal. Pakistan has been the second largest recipient with a total of $1.7 million in Agency assistance.

AGENCY FOR INTERNATIONAL DEVELOPMENT

FINANCIAL ASSISTANCE TO FOREIGN COUNTRIES

FOR PEACEFUL USES OF ATOMIC ENERGY

(000 omitted)

Type		Amount
Capital assistance (note a):		
Loan	$71,772	
Grants	1,396	$73,168
Technical assistance (note a):		
Grants		6,276
Program assistance (note b):		
Loans	3,876	
Grants	28	3,904
Total		$83,348

a/ Information cumulative through September 1974.

b/ Information is for July 1968 to June 1974.

AGENCY FOR INTERNATIONAL DEVELOPMENT

CAPITAL ASSISTANCE AND TECHNICAL ASSISTANCE FINANCING OF FOREIGN NUCLEAR ENERGY PROJECTS AND ACTIVITIES

CUMULATIVE AS OF SEPTEMBER 30, 1974

Recipient	Project or activity	Amount	Type of assistance	Year project or activity completed
		(000 omitted)		
	Capital assistance completed projects:			
India	Tarapur nuclear reactor	$71,772	Loan	1973
India	Nuclear research	662	Grant	1961
Pakistan	Atomic energy research	734	Grant	1966
		$73,168		
	Technical assistance projects and activities--ongoing:			
International training	International Atomic Energy Scholarship Program	$ 2,702	Grant	-
	Technical assistance completed projects and activities:			
Afghanistan	Nuclear science and engineering	$ 15	Grant	1960
Austria	Peaceful uses of atomic energy	5	Grant	1958
	Public administration of atomic power	8	Grant	1961
Brazil	Peaceful uses of atomic energy	66	Grant	1964
Chile	Peaceful uses of atomic energy	55	Grant	1963
Costa Rica	Atomic energy project	1	Grant	1961
Ecuador	Atomic energy	29	Grant	1962
Egypt	Atomic energy training	4	Grant	1962

Recipient	Project or activity	Amount	Type of assistance	Year project or activity completed
		(000 omitted)		
Germany	Safety training in atomic energy	$ 9	Grant	1959
Greece	Nuclear energy	170	Grant	1965
Iceland	Radioactive isotopes	3	Grant	1960
India	Nuclear engineering	956	Grant	1969
Indonesia	Atoms for Peace	65	Grant	1963
Iran	Nuclear reactor training	36	Grant	1965
Israel	Nuclear science school	74	Grant	1962
Japan	Peaceful uses of atomic energy	223	Grant	1964
Korea	Atomic energy training	65	Grant	1959
Lebanon	Peaceful uses of atomic energy	1	Grant	1956
	Radioactive isotope course	1	Grant	1959
Pakistan	Atomic energy training	23	Grant	1959
	Atomic Energy Commission sister laboratory	54	Grant	1972
Peru	Atomic science	5	Grant	1958
Philippines	Atomic energy training	447	Grant	1970
Republic of China	Nuclear medicine training	6	Grant	1958
	Reactor Institute	4	Grant	1958
	Training in atomic energy	23	Grant	1959
Spain	Training in nuclear energy	140	Grant	1965
	Atomic energy agriculture	54	Grant	1965
Thailand	Peaceful uses of atomic energy	80	Grant	1960
	Nuclear energy school	175	Grant	1965
	Isotope lab improvement	12	Grant	1961

Recipient	Project or activity	Amount	Type of assistance	Year project or activity completed
		(000 omitted)		
Turkey	Peaceful uses of atomic energy	$ 250	Grant	1960
	Atoms for Peace	201	Grant	1972
Uruguay	Peaceful uses of atomic energy	14	Grant	1961
Venezuela	Peaceful uses of atomic energy	6	Grant	1960
Yugoslavia	Radioactive isotopes	12	Grant	1960
	Nuclear energy	27	Grant	1963
	Nuclear energy	65	Grant	1964
European Regional	Atomic energy agriculture	40	Grant	1959
Engineering	Engineering and economic evaluation of atomic energy	90	Grant	1970
International training	Atoms for Peace	60	Grant	1967
Total		$ 3,574		

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROGRAM ASSISTANCE FINANCING

OF FOREIGN NUCLEAR EQUIPMENT AND MATERIALS

JULY 1968-JUNE 1974 (note a)

Recipient	Type of equipment or material	Amount	Form	Date authorized or signed
		(000 omitted)		
India	Nuclear reactor parts	$ 230	Loan	1970
	Special nuclear material	2,706	Loan	1970
Indonesia	Uranium and thorium compounds	33	Loan	1969
	Uranium and thorium compounds	10	Loan	1970
	Uranium and thorium compounds	33	Loan	1970
Israel	Nuclear reactor parts	6	Grant	1973
Korea	Nuclear reactor parts	22	Grant	1968
Pakistan	Heavy water	864	Loan	1973
Total		$3,904		

a/ Information on program assistance available only for fiscal years 1969-74.

ATOMIC ENERGY COMMISSION

Through fiscal year 1974 the Atomic Energy Commission sold special nuclear material and services valued at $1.2 billion to foreign countries. The Commission also helped foreign countries obtain special nuclear material through deferred-payment fuel contracts and long-term leases.

Under the Joint U.S.-European Atomic Energy Community Power Reactor Program, three reactors were built in Europe (two in Italy and one in France). The Commission assisted the Community by making long-term contracts available to fuel these reactors under a deferred-payment plan. This plan helped ease the initial heavy capital cost of purchasing enriched nuclear fuel by postponing payment of the principal on these fuel contracts for the first 10 years. During this period interest was charged on the outstanding balance. In the second 10-year period the Community was required to repay the principal plus interest. As of December 31, 1974, the outstanding balance on the three contracts was approximately $47 million.

In addition to these three contracts, one other deferred-payment contract has been executed by the Commission with the Indian Government to fuel the Tarapur nuclear power project. Of the $16.7 million contract, $15 million was outstanding as of December 31, 1974.

Commission lease contracts, which came into existence in 1955, permitted foreign countries to use special nuclear material and nuclear-related material for research experiments. Leased material was not permitted to be used in power reactors. In the peak year of 1967, the Commission leased material valued at $68 million to foreign countries. Under the lease contracts the Commission earned use charges through fiscal year 1974 totaling about $28.6 million. Use charges waived for the same period amounted to about $342,000. Effective June 30, 1973, the Commission terminated the leasing of nuclear-related material except in certain unusual situations.

ATOMIC ENERGY COMMISSION

MATERIALS AND SERVICES SOLD TO FOREIGN COUNTRIES

THROUGH FISCAL YEAR 1974

Fiscal year	Total Commission sales	Foreign sales: Total Commission foreign sales	Nuclear materials (note a)	Heavy water (note a)	Isotopes (note a)	Uranium enrichment services (note b)	Other products and services (note c)
	(millions)						
1974	$ 587.6	$ 404.5	$16.2	$ 4.8	$1.3	$379.5	$2.7
1973	349.5	199.0	21.4	34.5	1.4	136.9	4.8
1972	226.4	72.8	6.1	14.1	1.3	46.9	4.4
1971	309.2	131.2	14.2	42.8	1.2	72.2	.8
1970	168.0	76.3	15.0	34.3	1.3	24.7	1.0
1969	104.0	64.2	26.1	16.6	1.2	19.6	.7
1968	65.9	43.7	37.5	4.4	1.0	-	.8
1967	77.3	53.2	27.3	19.2	.9	-	5.8
1966	61.1	39.8	29.8	4.6	1.0	-	4.4
1965	34.2	10.8	6.1	3.9	.8	-	-
1964	15.4	4.9	2.9	1.4	.6	-	-
1963	18.9	6.5	4.4	1.8	.3	-	-
1962	19.6	7.5	2.7	4.3	.5	-	-
1961	15.5	9.7	3.8	5.5	.4	-	-
Through 1960	64.5	36.8	-	-	-	-	-
Total	$2,117.1	$1,160.9					

a/ Amounts through 1960 not readily available.

b/ The sale of uranium enrichment services began on January 1, 1969.

c/ Amounts through 1965 not readily available.

ATOMIC ENERGY COMMISSION

VALUE OF MATERIAL LEASED TO FOREIGN COUNTRIES AND THE USE CHARGES EARNED AND WAIVED BY FISCAL YEAR

Fiscal year	Value of material leased (note a)	Use charges	
		Earned	Waived
	(000 omitted)		
1974	$ 6,170	$ 677	$ 24
1973	14,504	2,195	98
1972	37,301	2,609	54
1971	42,736	3,077	39
1970	45,891	3,425	50
1969	45,046	2,611	1
1968	52,930	3,192	5
1967	68,013	3,172	8
1966	66,311	2,682	29
1965	43,645	1,720	12
1964	31,964	1,298	13
1963	21,460	732	9
1962	13,910	504	0
1961	9,612	228	0
1960	6,731	161	0
1959	3,389	82	0
1958	1,083	37	0
Through 1957	(b)	171	0
Total		$28,573	$342

a/ Column does not add since some material leased in one year may also be carried forward to later years.

b/ Not readily available.

ATOMIC ENERGY COMMISSION

DEFERRED-PAYMENT FUEL CONTRACTS

AS OF DECEMBER 31, 1974

Country	Reactor	Date executed	Interest rate	Commitment ceiling	Net value of shipments	Amount outstanding	Cumulative interest paid
				(000 omitted)			
Italy (note a)	SENN	1962	4.0%	$15,990	$14,855	$ 5,543	$ 3,817
Italy (note a)	SELNI	1963	7.5%	30,392	26,928	21,538	9,802
France (note a)	SENA	1964	4.0%	25,711	25,644	19,988	5,892
India	Tarapur	1965	7.5%	16,668	16,668	15,001	7,439
Total				$88,761	$84,095	$62,070	$26,950

a/ Contract executed with European Atomic Energy Community on behalf of the country.

APPENDIX V

EXPORT-IMPORT BANK

The largest U.S. Government source of financing foreign nuclear energy projects has been the Export-Import Bank of the United States. Through December 31, 1974, the Bank authorized loans of about $2.14 billion, of which $338 million were canceled, for financing foreign nuclear energy development. These loans included $2.10 billion for constructing and/or fueling 42 nuclear power projects in 11 foreign countries. An additional $32 million was authorized to finance five foreign nuclear training centers, two purchases of heavy water, a research reactor, and a nuclear energy engineering study. As of March 19, 1975, one direct loan to South Korea of approximately $79 million for constructing and fueling a nuclear power project was pending.

Bank direct loans are extended to foreign borrowers for purchasing U.S equipment, materials, and services needed for a nuclear power project. In 40 cases in which Bank direct loans were authorized, private U.S. sources participated with the Bank in extending credit to a foreign borrower. The total net value of private participation as of December 31, 1974, was about $1.1 billion.

Interest charged on the direct loans made by the Bank has ranged from 4.5 percent in earlier loans to 8 percent in more recent ones. Private sources have charged interest at a generally higher rate than the Bank.

The Bank has also provided 29 loan guarantees to private U.S. sources that have participated with it in extending credit for foreign nuclear energy projects. Through its financial guarantees, the Bank assures the repayment of loans extended by the private sources. As of December 31, 1974, the Bank's private loan guarantees totaled $736 million.

In two direct loans to Spain, the Bank also extended two local cost guarantees covering $31.1 million. Local cost guarantees are provided to non-U.S. financial institutions for financing the purchase of goods and services within a foreign country receiving a U.S. loan.

In the past the Bank followed a general policy whereby it financed 45 percent of a project, private sources financed an additional 45 percent, and the borrower made a 10-percent cash deposit. The Bank recently announced that it will increase its share of project financing in some cases to 55 percent of the export value. Also, a new flexible interest rate ranging from 7 to 9 percent has been established. Bank officials believe that these changes will provide greater flexibility in meeting the requirements of a particular transaction.

EXPORT-IMPORT BANK AND PRIVATE U.S. FINANCING OF NUCLEAR REACTOR PROJECTS AND RELATED NUCLEAR FACILITIES AS OF DECEMBER 31, 1974

Country	Reactor name	Items financed: Reactor equipment	Items financed: Fuel	Items financed: Other (note a)	Original U.S. export value (note b)	Export-Import Bank Financing: Date of loan authorization	Export-Import Bank Financing: Gross loan authorization	Export-Import Bank Financing: Net loan amount (note c)	Export-Import Bank Financing: Interest rate	Private U.S. financing: Source	Private U.S. financing: Amount (note d)	Cash payment by purchaser
					(000 omitted)		(000 omitted)				(000 omitted)	
Argentina	ATUCHA			x	$ 18,853	4- 3-69	$ 13,466	$ 13,466	6%	First National City Bank	$ 5,387	$ -
Brazil	ANGRA DOS REIS	x	x		153,334	8-19-71	138,000	69,000	7%	Morgan Trust Company	30,612	15,334
										Private Export Funding Corporation	38,338	
France	SENA	x	x		16,250	1-15-59	16,250	12,568	4.5%	-	-	-
Germany	ULM	x	x		28,500	1-15-59	28,500	27,829	4.5%	-	-	-
Germany	DORME		x		5,198	12-22-66	5,198	5,194	6%	-	-	-
Germany	OBRIGHEIM		x		9,500	1-19-67	9,000	9,000	6%	-	-	500
Germany	NIEDERAICHBACH			x	8,750	4-11-68	8,750	8,408	6%	-	-	-
Germany	-			x	6,200	9-24-74	1,860	1,860	8%	-	-	620
Greece	-			x	3,000	12-17-73	1,275	1,275	6%	Not available	a/1,275	300
Israel	-			x	350	10- 8-58	350	350	5%	-	-	-
Italy	SELNI	x	x		34,000	10-22-59	34,000	33,360	5.25%	-	-	-
Italy	ENEL IV	x	x		78,555	3-31-71	61,700	29,150	7%	Chase Manhattan Bank	a/17,425	6,855
										Private Export Funding Corporation	a/13,425	-
Japan	TSURUGA	x	x		40,034	6-30-66	40,034	32,968	5.5%	General Electric	6,290	3,216
Japan	MIHAMA #1	x	x		34,849	2- 9-67	34,849	32,223	6%	Westinghouse	3,478	3,109
										Mellon Bank	991	-
Japan	FUKUSHIMA #1	x	x		55,298	6-22-67	45,149	38,581	6%	General Electric	5,495	8,171
Japan	FUKUSHIMA #2	x	x		70,821	11-27-68	68,781	58,200	6%	General Electric	10,501	12,971
Japan	MIHAMA #2	x	x		36,400	2- 6-69	30,976	25,437	6%	Mellon Bank	3,045	5,410
Japan	TSURUGA		x		14,732	8-29-69	6,000	5,000	6%	Manufacturers		
								1,000	7%	Hanover Trust	6,000	2,732
Japan	TAKAHAMA #1	x	x		58,489	3- 5-70	30,210	30,210	6%	Westinghouse	a/25,960	6,833
										Chase Manhattan Bank	4,250	-
Japan	FUKUSHIMA #1		x		13,710	5-14-70	6,170	6,170	6%	Manufacturers Hanover Trust	6,170	1,370
Japan	MIHAMA #1		x		6,400	5-28-70	2,880	2,681	6%	Manufacturers Hanover Trust	2,880	640
Japan	TSURUGA	x			2,275	11- 2-70	1,024	1,024	6%	Manufacturers Hanover Trust	1,024	228
Japan	-			x	3,300	2-16-71	1,485	1,115	6%	Bankers Trust	a/1,485	330
Japan	OHI #1	x	x		90,500	3-31-71	40,725	40,725	6%	Bank of America	a/40,725	9,050
Japan	OHI #2	x	x		67,200	3-31-71	30,240	30,240	6%	Bank of America	a/30,240	6,720
Japan	TAKAHAMA #2	x	x		25,300	3-31-71	11,385	10,805	6%	Chase Manhattan Bank	a/11,385	2,530
Japan	FUKUSHIMA #6	x	x		115,047	6-29-72	51,771	51,771	6%	Manufacturers Hanover Trust	40,266	23,010
Japan	TOKAI #2	x	x		131,391	6-29-72	59,126	59,126	6%	Manufacturers Hanover Trust	45,947	26,278
Japan	TSURUGA		x		19,444	7-29-74	5,833	5,833	8%	Not available	11,666	1,944
Korea	KO-RI #1	x	x		68,255	8-21-69	47,250	47,250	6%	Westinghouse	a/5,277	6,310
										Mellon Bank	a/9,419	-
Korea	KO-RI #1	x	x		3,793	7-20-70	1,705	1,705	6%	Westinghouse	379	384
										Bank of America	a/1,326	-
Mexico	-			x	2,000	10-18-63	2,000	2,000	6%	-	-	-
Mexico	-			x	763	5-16-68	763	763	6%	-	-	-

Spain	ZORITA	-	-					6%	-	-	3,085
Spain	Santa Maria de Garona	x	x	48,509	6-29-67	44,200	41,616	6%	General Electric	1,282	4,309
Spain	ZORITA		x	5,670	6-25-70	2,551	2,472	6%	Manufacturers Hanover Trust	e/2,551	568
Spain	LEMONIZ #1 and #2	x	x	199,859	1-20-72	143,614	58,201	7%	Manufacturers Hanover Trust	e/35,400	56,245
									First National City Bank	e/12,133	-
									Marine Midland Bank	e/12,133	-
									Bank of North America National Trust and Savings Association	e/12,133	-
Spain	ALMARES #1 and #2	x	x	185,200	1-27-72	141,500	70,750	7%	Manufacturers Hanover Trust	e/36,000	43,700
									Chemical Bank	e/34,750	-
Spain	ASCO #1	x	x	98,667	2- 3-72	44,400	44,400	7%	Chase Manhattan Bank	e/44,400	9,867
Spain	ASCO #2	x	x	108,955	4-16-73	49,035	f/14,800 49,035	6%	Chase Manhattan Bank	e/49,034	10,896
Spain	COFRENTES	x	x	104,700	5-10-73	47,115	f/16,345 47,115	6%	Manufacturers Hanover Trust	47,115	10,470
Sweden	OKG		x	11,500	6-22-67	9,000	8,759	6%	-	-	2,500
Sweden	BARSEBECK #1		x	10,066	8-31-70	4,500	4,500	6%	-	-	5,566
Sweden	RUNGHALS #3 and #4	x		44,700	10- 5-72	20,115	20,115	6%	Manufacturers Hanover Trust	20,115	4,470
Sweden	BARSEBECK #2		x	16,369	11- 1-73	6,570	6,570	6%	Not available	e/3,285	3,229
Taiwan	CHINSHAN #1	x	x	88,560	7-26-69	79,704	68,385	6%	General Electric Westinghouse	11,319	8,856
Taiwan	CHINSHAN #2	x	x	103,835	8-27-70	46,726	46,726	6%	Irving Trust	e/19,726	10,384
									Private Export Funding Corporation	e/27,000	-
Taiwan	TAIPOWER #3 and #4	x	x	333,000	6-30-72	149,850	149,850	6%	Irving Trust	e/73,830	33,300
									Private Export Funding Corporation	e/76,020	-
Taiwan	TAIPOWER #5 and #6	x		498,747	4-25-74	199,499	199,499	6% 7%	Private Export Funding Corporation	e/99,749	99,750
Yugoslavia	KRSKO	x	x	195,577	5- 9-74	176,019	176,019	7%	Private Export Funding Corporation	e/29,337	19,558
						g/29,473	g/29,473	7%			
Total				$2,415,535		$2,136,535	$1,798,526			$1,082,924	$ 483,983

a/ Represents either engineering study, nuclear training center, heavy water purchase, or research reactor.

b/ The U.S. export value may have changed due to revised cost estimates.

c/ Represents the value of the Bank's direct loan after any cancellations.

d/ Represents original amount net of any cancellations.

e/ Indicates loan guaranteed by the Bank.

f/ Represents a Bank guarantee of a local cost loan made by a non-U.S. financial institution and is not included in the column total.

g/ The Bank is financing 90 percent of the interest costs which accrue on the loan during project construction.

U.S. FINANCIAL PARTICIPATION IN THE INTERNATIONAL ATOMIC ENERGY AGENCY

From 1957, when the International Atomic Energy Agency was established, through 1974 the United States provided about $76 million to the International Atomic Energy Agency. This amount included:

--$54.2 million in regular budget assessments (which have averaged about 32 percent of the regular budget over the years).

--$10.7 million in voluntary cash contributions to the Agency's operational budget.

--$9.3 million in U.S. gifts-in-kind (cost-free fellowships, experts, training courses, and equipment).

--$1.1 million in research contracts.

--$713,100 in voluntary gifts of special nuclear material (including enriched uranium and plutonium).

Additional assistance is provided in the area of safeguards research by the Arms Control and Disarmament Agency. The Arms Control and Disarmament Agency conducts and funds research in the United States on safeguards instrumentation and techniques based on the needs developed and identified by the International Atomic Energy Agency. The research is carried out by either U.S. private contractors or other U.S. Government agencies.

U.S. FINANCIAL PARTICIPATION IN THE INTERNATIONAL ATOMIC ENERGY AGENCY

1958 THROUGH 1974

Calendar year	Agency regular budget (note a) U.S. assessment	U.S. percentage (note b)	Agency operational budget (note c) Voluntary U.S. cash contributions	Voluntary U.S. gifts-in-kind (note d)	Total
	(000 omitted)		(000 omitted)		
1958	$ 1,363	33	$ 65	$ -	$ 65
1959	1,699	33	592	1,050	1,642
1960	1.900	33	500	608	1,108
1961	2,000	32	631	354	985
1962	2,139	32	690	472	1,162
1963	2,281	32	719	387	1,106
1964	2,305	32	678	397	1,075
1965	2,456	33	597	401	998
1966	2,765	32	531	400	931
1967	2,924	32	492	400	892
1968	3,238	32	478	407	885
1969	3,437	32	499	407	906
1970	3,734	32	630	750	1,380
1971	3,977	32	786	764	1,550
1972	4,882	32	946	604	1,550
1973	5,725	32	946	804	1,750
1974	7,383	32	950	1,050	2,000
	$54,208		$10,730	$9,255	$19,985

a/ U.S. contributions to the regular budget represent State Department appropriations.

b/ Represents percentage of U.S. contribution to total assessments made by the Agency.

c/ Before enactment of the Foreign Assistance Act of 1961, U.S. funds for the operational budget were provided under the Mutual Security Program.

d/ U.S. gifts-in-kind include cost-free fellowships, experts, training courses, and equipment.

U.S. VOLUNTARY GIFTS OF SPECIAL NUCLEAR MATERIAL TO THE INTERNATIONAL ATOMIC ENERGY AGENCY (note a)

1960 THROUGH 1974

Year	Recipient	Type of material: Enriched uranium	Type of material: Plutonium	Value (approximate)
1960	Finland	X		$ 31,800
1961	Yugoslavia	X		32,100
1962	Pakistan	X	X	47,700
	Zaire	X		2,300
1963	Mexico	X		45,100
	Agency Laboratory		X	4,100
1964	Norway	X		14,700
	Argentina	X		35,300
1965	Argentina	X		10,700
	Uruguay	X	X	39,300
1966	Philippines	X		35,200
	Finland	X		4,200
	Mexico		X	3,400
	Turkey		X	3,400
	India		X	3,400
1967	Mexico		X	3,400
	Spain	X		10,000
	Vietnam	X		900
	Zaire	X		900
	Iran	X		34,800
1968	Pakistan	X		25,200
	Philippines	X		14,500
	Spain	X		10,000
	Agency Laboratory		X	300
1969	Chile	X		23,700
	Indonesia	X		23,700
	India	X	X	2,700
1970	Brazil	X		5,200
	Greece	X		1,000
	Yugoslavia	X		5,600
	Indonesia	X		14,200
	Chile	X		24,000
1971	Zaire	X		32,600
	Greece	X		15,400
	Pakistan	X	X	2,000
1972	Greece	X		20,000
	Mexico	X		9,200
	Yugoslavia	X		8,500
	Romania	X		2,400
	Iraq		X	700
	Chile	X		9,300

Year	Recipient	Type of material: Enriched uranium	Type of material: Plutonium	Value (approximate)
1973	Indonesia	X		$ 6,500
	Turkey	X		6,800
	Venezuela	X		36,800
1974	Mexico	X		16,700
	Romania	X		16,700
	Thailand	X		16,700
Total				$713,100

a/ In most cases, special nuclear material gifts to the Agency were redistributed to member nations.

APPENDIX VII

ARMS CONTROL AND DISARMAMENT AGENCY

SAFEGUARD RESEARCH CONTRACT FUNDS

IN SUPPORT OF THE

INTERNATIONAL ATOMIC ENERGY AGENCY

Program	Funding by fiscal year						
	1968-69	1970	1971	1972	1973	1974	Total
Portable instrumentation	$133,000	$ 42,000	$ 26,000	$ 10,000	$ 7,500	$ -	$ 218,500
Seals and indentification devices	89,500	66,300	89,354	8,000	48,028	14,000	315,182
Tamper-resistant, unattended surveillance techniques	361,000	261,680	341,277	415,177	261,594	80,000	1,720,728
Minor isotope safeguard techniques	202,000	154,500	140,000	175,023	360,920	-	1,032,443
General technical support for international safeguards	-	-	-	-	58,000	-	58,000
Total	$785,500	$524,480	$596,631	$608,200	$736,042	$94,000	$3,344,853

The stated objectives of the Arms Control and Disarmament Agency Safeguards Research Program are:

--To support the implementation of the Non-Proliferation Treaty by insuring the independence, effectiveness, and credibility of International Atomic Energy Agency safeguards inspections.

--To support the International Atomic Energy Agency by insuring that it has the necessary safeguard instruments, devices, methods, and techniques.

--To support ratification of the Non-Proliferation Treaty by developing jointly with national and multinational safeguards agencies safeguards inspection procedures and devices which are unobtrusive and cost effective.

--To foster understanding of the Non-Proliferation Treaty by developing jointly with the nuclear industry safeguards inspection procedures and devices which are useful to industry, protect proprietary industrial interests, and reduce inspection effort.

The Arms Control and Disarmament Agency estimated that the total value of its fiscal year 1975 research contracts would be about $286,000.