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The following announcement is from the World Bank:

A Treaty governing the use of the waters of the Indus system of rivers, entitled "The Indus Water Treaty 1960", was signed on 19th September in Karachi, by Shri Jawaharlal Nehru (Prime Minister of India) on behalf of India and by Field Marshal Mohammad Ayub Khan (President of Pakistan) on behalf of Pakistan. The Treaty was signed on behalf of the World Bank by Mr. W.A.B. Iliff (Vice President of the Bank) in the unavoidable absence of the President of the Bank, Mr. Eugene R. Black, who is convalescing from a recent illness.

Signature of the Treaty marks the end of a critical and long-standing dispute between India and Pakistan, and opens the way to the peaceful use and development of water resources on which depends the livelihood of some 50 million people in the two countries.

Simultaneously with the signing of the Indus Waters Treaty, an international financial Agreement was also executed in Karachi by representatives of the Governments of Australia, Canada, Germany, New Zealand, Pakistan, the United Kingdom and the United States, and of the World Bank. This Agreement creates an Indus Basin Development Fund of almost \$900 million to finance the construction of irrigation and other works in Pakistan consequential on the Treaty settlement. The Fund will be financed with the

equivalent of about \$640 million to be provided by the participating governments, with a contribution of approximately \$174 million payable by India under the Water Treaty, and with \$80 million out of the proceeds of a World Bank loan to Pakistan.

THE INDUS SYSTEM

The Indus, with its five main tributary rivers, comprises one of the great river systems of the world. Its annual flow is twice that of the Nile and three times that of the Tigris and Euphrates combined; it amounts to almost 170 million acre-feet, or enough water to submerge, to a depth of one foot, the whole area of the State of Texas, or the whole area of France.

All of the six main rivers of the system rise in the high Himalayas. Fed chiefly by melting snow and ice, and by the monsoon rains, they descend through the mountains and the hills on to the gently sloping plains of West Pakistan and northwestern India.

Rainfall is scanty in the plains area, and without the rivers, and the irrigation system, the plains of the Indus basin would be desert. But, with the system of irrigation developed over the last hundred years, the rivers support a population of about 40 million people in Pakistan and about 10 million in India -- approximately one-tenth of the combined population of the two countries. The area of irrigated land is about 30 million acres. This is the largest irrigation system in the world; it feeds a larger area than is irrigated in Egypt and the Sudan by the Nile.

Up to now, the system has been developed entirely from river flow, and without reservoir storage; in consequence, water supplies are precarious to the extent that they are subject not only to the seasonal variations, but also to the year-by-year variations, in the flow of the rivers.

The sharing of the waters of the Indus system has been a matter of dispute for many years. Until the subcontinent was partitioned in 1947 between India and Pakistan, there were conflicting water claims continuously in dispute between the Sind and Punjab provinces of undivided India. Partition drew the border between India and Pakistan right across the Indus system. Pakistan became the downstream riparian, and the headworks of two of the main irrigation canals in Pakistan were left on the Indian side of the border. The sharing of the use of the waters thereupon became an international issue, and has since been a principal cause of strained relations between India and Pakistan.

THE INDUS NEGOTIATIONS

In 1951, an article written by Mr. David Lilienthal (former Chairman of the Tennessee Valley Authority) appeared in a popular American magazine. This article suggested that a solution of the dispute might possibly be found if Indian and Pakistan technicians would together work out a comprehensive engineering plan for the development of the waters of the system, on a joint basis, and if the World Bank would undertake to assist in financing the necessary works.

Inspired by this idea, Mr. Eugene R. Black, the President of the World Bank, proposed to the Governments of the two countries that, with the good offices of the Bank, they might be able to resolve their differences on the use of the Indus waters. His suggestion was accepted in March 1952.

There followed two years of study by a technical group consisting of Indian, Pakistan and World Bank engineers, under the direction of General Raymond A. Wheeler. The purpose of this study was an endeavor to prepare a comprehensive Plan for the development, on a joint basis, of the water

resources of the system. But it became apparent that no progress could be made towards a settlement until there was agreement on the basic issue, namely, how was the use of the waters to be divided between the two countries. Accordingly, in February 1954, General Wheeler was authorized by the Bank Management to make a Bank Proposal for consideration by the two Governments.

The elements of the Bank Proposal were:-

- (a) the waters of the three Eastern Rivers (Ravi, Beas and Sutlej) should be for the use of India;
- (b) the waters of the three Western Rivers (Indus, Jhelum and Chenab) should be for the use of Pakistan;
- (c) there should be a transition Period, during which Pakistan would construct a system of link canals to transfer water from the Western Rivers to replace the irrigation uses in Pakistan hitherto met from the Eastern Rivers; and
- (d) India should pay the cost of constructing these replacement link canals.

The Bank Proposal was accepted by India, with some reservations, as the basis of a settlement. Pakistan, however, felt unable to accept the Proposal unless it underwent substantial amendment, mainly related to the inclusion of some reservoir storage in the replacement plan to meet irrigation uses in Pakistan during the critical periods of short flow supplies.

There then followed more than four years of discussion and negotiation in Washington between an Indian Delegation, led by Mr. N. D. Gulhati (Additional Secretary to the Government of India, Ministry of Irrigation and Power) and a Pakistan Delegation, led by Mr. G. Mueenuddin (Secretary to the Government of Pakistan, Ministry of Fuel, Power and National Resources). The Bank was represented by Mr. Iliff, assisted by a small group of technical experts led by General Wheeler.

By May 1959 the main issues standing in the way of a settlement had crystallized, and Mr. Black and Mr. Iliff visited New Delhi and Karachi to hold conversations with the Prime Minister of India and with the President of Pakistan. In the course of this visit, agreement was reached on the general principles on which a water treaty should be based, including the system of works to be constructed as part of the settlement arrangements, and the financial contribution to be made by India.

The drafting of the Treaty began in August 1959, and entailed further negotiations, under the auspices of the World Bank, directed towards securing agreement on the many complicated technical and financial details which had to be specifically incorporated in any final document.

Meanwhile, it had become apparent that the cost of financing the system of works in India and in Pakistan to which the two Governments had agreed as one of the features of an acceptable settlement, was far beyond the capacity of India and Pakistan to meet. The Bank therefore undertook the formulation of a plan envisaging financial participation by a number of other friendly governments interested in promoting the orderly economic development of the Indian sub-continent, and in bringing about a settlement of this troublesome and contentious water dispute. The basis of this participation entailed an independent series of negotiations, and the preparation of the Indus Basin Development Fund Agreement.

The texts of the Indus Waters Treaty and of the Indus Basin Development Fund Agreement were finally agreed late in August 1960.

THE TREATY IN OUTLINE

The Preamble to the Treaty recognizes the need for "fixing and delimiting in the spirit of good will and friendship the rights and obligations" of the

Government of India and the Government of Pakistan concerning the use of the waters of the Indus River System.

The Treaty allocates the waters of the three Eastern Rivers -- Ravi, Beas and Sutlej -- to India, with certain exceptions specified in the Treaty. The main exception is that during a Transition Period, while the works are being constructed in Pakistan for the replacement of Eastern River water, India will continue to deliver water to Pakistan from the Eastern Rivers in accordance with a schedule set out in an Annexure to the Treaty. The Transition Period will be ten years, but may, in certain circumstances, be extended by a further one, two or three years.

The waters of the three Western Rivers - Indus, Jhelum and Chenab - are for the use of Pakistan, and India undertakes to let flow for unrestricted use by Pakistan all the waters of these three rivers, subject to Treaty provisions that some of these waters may be used by India in areas upstream of the Pakistan border for the development of irrigation, electric power and certain other uses spelled out in detail in Annexures to the Treaty.

Pakistan undertakes to construct, during the Transition Period, a system of works, part of which will replace, from the Western Rivers, those irrigation uses in Pakistan which have hitherto been met from the Eastern Rivers.

India is to contribute to the Indus Basin Development Fund about £62,000,000 (about \$174 million) in ten equal annual installments.

Both countries recognize their common interest in the optimum development of the rivers, and declare their intention to cooperate by mutual agreement to the fullest possible extent. Meteorological and hydrological observation stations are to be established and the Treaty provides for a complete exchange of information from these stations. It also provides for an exchange of

information about proposed river works to enable each party to estimate the effects these works may have on its own situation.

The Treaty sets up a Permanent Indus Commission composed of two persons, one appointed by each of the Governments. The Commission will have general responsibility for implementing the provisions of the Treaty and will seek to reconcile any points of disagreement that may arise. Once every five years the Commission will make a general tour of inspection of all the works on the rivers; and the Commission may, on the request of either Commissioner, at any time visit any particular work in either country. The Commission will report at least once a year to each of the Governments. Each Government undertakes to give to the Commissioner of the other Government the immunities and privileges extended under the Convention on Privileges and Immunities of the United Nations.

Where differences or disputes cannot be resolved by agreement between the Commissioners, the Treaty establishes machinery for resort to a "Neutral Expert" (who is to be a highly-qualified engineer) for a final decision on technical questions, and for resort, in certain circumstances, to a Court of Arbitration.

The Treaty has nine Annexures. The principal matters covered in these Annexures are: Agricultural Use by Pakistan of water from the tributaries of the Ravi River; Agricultural Use by India of water from the Western Rivers; Generation of hydro-electric power by India on the Western Rivers; Storage of water by India on the Western Rivers; Questions that may be referred to a Neutral Expert; Appointment and Procedure of a Court of Arbitration; and Transitional Arrangements relating to the deliveries of water to Pakistan from the Eastern Rivers during the Transition Period.

The Treaty will come into force on the exchange of ratifications, which will take place in New Delhi.

THE INDUS WORKS PROGRAM

The division of waters provided for in the Treaty necessitates the construction of works to transfer water from the three Western Rivers to meet the irrigation uses in Pakistan hitherto met by water from the three Eastern Rivers. The effect of the transfer will be eventually to release the whole flow of the three Eastern Rivers for irrigation development in India.

The system of canals and reservoirs that will actually be constructed will, however, provide further substantial irrigation development, and will develop important hydro-electric potential, in both India and Pakistan. It will also make a much-needed contribution to soil reclamation and drainage in Pakistan, and provide a measure of flood protection in both countries.

The program will be the largest of its kind ever to be undertaken anywhere. The total cost of the program will be approximately the equivalent of \$1,070,000,000 (or £380,000,000 sterling) of which approximately \$870,000,000 (or £310,000,000 sterling) will be spent on works in Pakistan, and approximately \$200,000,000 (or £70,000,000 sterling) on works in India. It calls for the excavation of about 700,000,000 cubic yards of earth, for instance, and will require the use of 2,000,000 tons of cement, 250,000 tons of steel and 1,000,000,000 bricks and tiles.

Works in Pakistan

The following works are to be built in West Pakistan:

1. A system of eight link canals nearly 400 miles in total length, transferring water from the Western Rivers to areas formerly irrigated by

the Eastern Rivers. The total area to be thus irrigated is about 5,000,000 acres. The total annual volume of water to be transferred is 14 million acre feet, about equal to the entire yearly flow of the Colorado River in the United States. Three of the canals will each be big enough to carry twice as much water as the average flow of the Potomac River at Washington or ten times as much as the average flow of the Thames at Teddington.

2. Two earth-fill storage dams, one on the Jhelum River (with a live reservoir capacity of 4.75 million acre feet) and the other on the upper Indus (with a live reservoir capacity of 4.2 million acre feet). These two reservoirs will provide the water-storage potential to meet on a firm basis the irrigation supplies of the Pakistan canals during critical periods of fluctuating short flow supplies, and, as well, will make possible substantial new irrigation development.

3. Power stations will be installed at the Jhelum Dam with a capacity of more than 300,000 kilowatts.

4. Works to integrate the present canal and river system into the new inter-river link canals. These works include three barrages to carry new canals across rivers, and the remodelling of five existing barrages and of eight existing canals.

5. Tubewells and drainage to overcome waterlogging and salinity in irrigated areas totaling 2,500,000 acres. The number of tubewells to be installed is 2,500.

The general scheme of works was drawn up by an Indus Basin Advisory Board set up by the Government of Pakistan, which in addition to Pakistan irrigation engineers, included representatives of American and British engineering firms, and in consultation with the World Bank. The responsibility

for carrying out the works rests with the Water and Power Development Authority of West Pakistan (WAPDA).

The cost of the works in Pakistan will be financed out of the Indus Basin Development Fund.

Works in India

The Indus settlement also envisages the construction of a large earth-fill dam on the Beas River in India. This dam will create a reservoir with a live capacity of 5.5 million acre feet, and a hydro-electric potential for generating 200,000 kilowatts of power. Together with the Bhakra Reservoir on the Sutlej River (now nearing completion) and with the newly constructed Rajasthan canal system, it will serve as the basis for irrigating large areas in the Punjab and in the Rajasthan desert. The Beas project will not be financed from the Indus Basin Development Fund. The foreign exchange cost will be met by a loan of \$33 million from the United States Government and by a loan of \$23 million from the World Bank. The rupee expenditure will be borne by the Government of India.

THE INDUS BASIN DEVELOPMENT FUND

The Indus Basin Development Fund is established by the Indus Basin Development Fund Agreement, which will become effective on the ratification of the Indus Waters Treaty by India and Pakistan.

The Agreement provides the Fund with the following resources of foreign exchange:

A. Treaty Contribution by India L Stg. 62,060,000

B. Contributions in Grants from each of the following Governments in the amounts shown:

Australia	E A.	6,965,000
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Canada	Can.\$	22,100,000
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Germany	DM	126,000,000
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New Zealand	£ NZ	1,000,000
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United Kingdom	£ Stg. 20,860,000
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United States	\$	177,000,000
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C. Proceeds of a United States Govern-

ment Loan to Pakistan	\$ 70,000,000
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D. Proceeds of a World Bank Loan to

Pakistan	\$ 80,000,000
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E. Contribution by Pakistan	6 Stg.	440,000
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All of the above contributions will be freely usable or convertible for purchases in member countries of the Bank and in New Zealand and Switzerland.

In addition, the Fund will be provided with the following resources of Pakistan rupees to finance expenditure in Pakistan currency:-

F. A contribution by the United States in

Pakistan rupees equivalent to \$ 235,000,000

This contribution will be in the form of grants, or loans, or both, to Pakistan as may be agreed between the United States and Pakistan.

G. A contribution by Pakistan in Pakistan

rupees equivalent to £ Stg. 9,850,000

The aggregate resources of the Fund in foreign exchange and in Pakistan rupees will be of the order of the equivalent of \$894,000,000 (about £320,000,000 sterling).

The Fund will be administered by the World Bank. As Administrator, the Bank will be responsible under the Fund Agreement for calling up half-yearly contributions to the Fund and for regulating disbursements from the Fund to meet approved expenditures incurred by WAPDA on the works in Pakistan as the construction program progresses.

The United States Loan

The United States Development Loan Fund agreement for a loan of \$70 million to Pakistan, of which the proceeds will accrue to the Indus Basin Development Fund has been signed on behalf of Pakistan by Mr. Mohamed Shoaib, Finance Minister, and on behalf of the Development Loan Fund by United States Ambassador William Rountree. Repayment will be made in Pakistan rupees over a period of 30 years from the date of the first disbursement, and interest will be at the rate of $3\frac{1}{2}\%$ per annum.

The World Bank Loan

The agreement covering the World Bank loan was signed in Karachi today by Mr. Mohamed Shoaib, Finance Minister, on behalf of Pakistan, and by Mr. Iliff on behalf of the Bank. The amount of the loan is \$90 million, of which \$80 million will be paid into the Indus Basin Development Fund and the balance of \$10 million will be available to meet interest and other charges on the loan during the first eight years of the period of construction of the works. The loan is to be repaid over a period of 20 years beginning in 1970. Each portion of the loan, as it is made available for disbursement, will carry interest at the rate then in effect for long-term loans being made by the Bank.

INDUS BASIN

SETTLEMENT PLAN

