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ASIAN DEVELOPMENT BANK

REPORT AND RECOMMENDATION OF

THE PRESIDENT

TO THE BOARD OF DIRECTORS

ON THE

PROPOSED LOANS AND TECHNICAL ASSISTANCE

TO THE

PEOPLE'S REPUBLIC OF BANGLADESH

FOR THE

BANGLADESH WEST ZONE POWER PROJECT

11 September 1973

REPORT AND RECOMMENDATION OF THE PRESIDENT
TO THE BOARD OF DIRECTORS ON THE PROPOSED LOANS
AND TECHNICAL ASSISTANCE TO THE PEOPLE'S REPUBLIC OF
BANGLADESH FOR THE BANGLADESH WEST ZONE POWER PROJECT

1. I submit to the Board of Directors for their consideration and decision the following Report and Recommendation on the proposed loans and technical assistance in an aggregate amount in various currencies equivalent to \$10.70 million to the People's Republic of Bangladesh for The Bangladesh West Zone Power Project.

I. INTRODUCTION

2. The Bank's Economic-cum-Reconnaissance Mission which visited Bangladesh in November-December 1972 noted that the power sector needed expansion and development and that it warranted further detailed investigation. Accordingly, a Fact-Finding Mission visited Bangladesh in March 1973 and identified a priority project for the augmentation of electrical energy availability in Eastern Bangladesh by the installation of a gas turbine. Subsequently, an Appraisal Mission visited Bangladesh from 8 May to 22 May 1973. A Supplementary Appraisal Mission visited Bangladesh to follow-up a number of items initiated by the previous Mission. Formal negotiations were held in Manila on 5 and 6 September 1973 with representatives of the Government of the People's Republic of Bangladesh and the Bangladesh Power Development Board, the designated Executing Agency of the Project. If approved, the proposed Project will be the third Bank-financed project in Bangladesh for which loan financing has been executed by the Bank.

II. DESCRIPTION OF THE PROPOSED FINANCIAL ASSISTANCE

3. The main features of the proposed loans are as follows:

| | | |
|------------------|---|------------------------------------|
| Borrower | : | People's Republic of Bangladesh |
| Executing Agency | : | Bangladesh Power Development Board |

- Purpose** : To finance the foreign exchange cost of construction of a 40 MW gas turbine power plant at Bheramara and associated equipment
- Amount** : The equivalent in various currencies of \$10.45 million to be provided as follows:
- (i) \$1.20 million equivalent from the ordinary capital resources of the Bank.
 - (ii) \$9.25 million equivalent from the Special Funds resources of the Bank.
- Period of Utilization** : Until 31 December 1975 (assuming that this permits 1 year warranty)
- Terms and Amortization** :
- (i) for the loan from the ordinary capital resources:
20 years including a grace period of 4 years; and
 - (ii) for the loan from the Special Funds resources:
40 years including a grace period of 10 years.
- Principal, interest and other charges are payable semi-annually.
- Commitment Charge, Interest, and Commission** : (i) for the loan from the ordinary capital resources:

3/4 of 1 per cent commitment charge and interest rate of 7-1/2 per cent per annum (including commission)

(ii) for the loan from the Special Funds resources:

1 per cent interest (including service fee)

4. Technical assistance in an amount not exceeding \$250,000 is also proposed to be given on grant basis to the People's Republic of Bangladesh and the Bangladesh Power Development Board for assisting the latter in the improvement of the management, financial and accounting systems.

III. THE PROJECT

5. An Appraisal Report entitled "Appraisal of the Bangladesh West Zone Power Project" (Report No. BAN:Ap-3) is circulated herewith.

6. The development of the power sector in Bangladesh began in the 1960's, mainly to support the industrialization efforts under the Second and Third Five-Year Plans of the then East Pakistan. The power system in Bangladesh is divided into two separate networks, namely, the East Zone and the West Zone, divided by the Ganges-Brahmaputra river system. Of the 546 MW capacity available, or shortly to be available when a current repair program is completed (the system suffered considerable damage during the events of 1971), about 50 per cent is steam turbine powered, 25 per cent gas turbine, 15 per cent hydropower and 10 per cent diesel units. The steam and gas turbines in the East Zone rely on piped natural gas for their fuel from northeastern Bangladesh.

7. During 1962-1970, the maximum demand for power grew at an average rate of 16 per cent per annum. The expansion of generation facilities however, increased at a rate of 23 per cent per annum during this period thus resulting in excess generating capacity in the country as a whole. While the growth in

demand in the West has been at a higher rate (20 per cent) than in the East, the additions to the generating capacity, on the other hand, increased at a slower pace. Consequently, the growth in demand in the West Zone exceeded the available firm capacity.

8. Peak demand in both the zones is approaching the pre-1971 levels. In the East Zone, the firm generating capacity (380 MW) is well in excess of present demand; in the West Zone, however, even the present peak demand of 45 MW cannot be met by the existing firm capacity of 43 MW. Studies have been made on the feasibility of 230 kV transmission line to interconnect the East and the West Zones; the interconnector presents formidable technical problems. It is accordingly envisaged that, for sometime to come, the two zones will continue as independent units. It is also estimated that maximum demand in the West Zone will increase at an average annual rate of 17 per cent from 1972/73 to 1980/81, with the rate rising sharply in the early 1970's as pent up demands are met and tapering off to 10 per cent per annum later in the period. Increased generating capacity for the West Zone, is, therefore, urgently required. In the East Zone, however, investment in generation capacity is not immediately needed.

9. The power development program for the First Five-Year Plan (1973/74 to 1977/78) is under preparation. The major thrust of this plan, aside from the reconstruction and rehabilitation of works, will be to provide better balance between the generating and distribution facilities in the power system. The five-year investment in the power sector is estimated at Tk. 4,235 million (\$581 million).

10. The proposed Project consists of the following:
(i) a 40 MW gas turbine station to be installed at Bheramara in the West Zone; (ii) spare parts for the existing gas turbine installation at Khulna; (iii) sub-station and communication equipment to permit the effective operation of the Project station on the West Zone Grid; and (iv) consultant and training services for project implementation. The total cost of the Project is estimated at \$17.5 million including a foreign exchange component of \$10.45 million and a local currency component of \$7.05 million. The local costs of the Project will be met by the Government.

11. The technical aspects of the Project have been thoroughly reviewed by the Mission, in consultation with the Bangladesh Power Development Board (BPDB), and the size, type and location of the gas turbine units proposed provide the least cost and technically the most appropriate solution to the additional generation facilities required. The cost estimates for the Project are realistic. The BPDB staff will be assisted and supported by consultants in the implementation of the Project and in the training of staff in the use of the new facilities. The Bank's Guidelines for Procurement for goods and consultant services will be followed, with the exception of the procurement of spare parts (amounting to \$250,000) of the existing gas turbines which must come from the original manufacturer (Fiat of Italy).

12. The Project will help the West Zone system meet the projected load growth, permit the more orderly and efficient use of other generation facilities by supplying peaking and stand-by capacity, and provide industries in the West Zone (which account for more than two-thirds of the load with a reliable and adequate supply of energy. The economic rate of return on the Project is estimated at 12 per cent. The Project also has important technical benefits in that it will improve reliability of the system in the West Zone and provide greater flexibility in its operations.

13. BPDB will be the Executing Agency for the Project. BPDB was established in 1972 by the President's Order No. 59 of 1972 reconstituting the former East Pakistan Water and Power Development Authority (EPWAPDA) into two distinct and independent entities, namely, Water Development Board and Power Development Board. BPDB is a statutory corporate body which functions under the close supervision of the Ministry of Power, Flood Control and Water Resources. BPDB is responsible for planning and operation of all power facilities in Bangladesh; it is governed by a Board consisting of a chairman and not more than five members, all of whom are appointed by the Government. The Minister for Power, Flood Control and Water Resources is the Chairman and the Secretary of the said Ministry is also a member. There are at present three full-time members of the Board: for administration, engineering and finance.

14. BPDB has certain operating problems. The supply of power to consumers has been erratic and unreliable, the compilation of necessary records and data on operations is delayed in the head office, and systems planning has been weak and has contributed to the creation of substantial excess generating capacity. BPDB (and its predecessor organizations) has undergone in the last ten years a period of rapid growth which has included the incorporation of many smaller less efficient utilities under its organization, as well as the commissioning of larger new generating units in the systems. Moreover, BPDB's reliance in the past for external financial and technical assistance on ten bilateral donors has presented a formidable problem of coordination to the organization.

15. The operating rules and regulations of BPDB are still under preparation and for the present, former EPWAPDA rules and regulations are relied upon. The Government has also to finalize the basic policy regarding the organizational set up and the responsibilities of entities such as BPDB. The Bangladesh Government recognizes these problems. It is in evidence that it has taken action in some areas and has other remedial measures under consideration. The Government has requested that the Bank provide a suitable senior expert, experienced in the operation and management of electric utilities, to help BPDB in initiating and implementing such organizational and management reforms that are being considered and/or would be necessary.

16. The financial position of BPDB, which was marginal prior to 1971, has been weakened considerably as a result of the events of 1971/72, devaluation, domestic inflation, and rising depreciation and interest charges. BPDB and the Government have agreed that the Bank should provide technical assistance consisting of a team of consultants specialized in electric utility accounting and finance to review and initiate implementation of measures to improve the accounting system; revalue the assets and reconstruct the current accounts of BPDB; examine special aspects of its systems and procedures; and prepare financial projections, under alternative assumptions for the coming decade. This work will provide a sound basis for consultations between the Bank, BPDB and the Government regarding suitable measures to be taken including a rationalization of tariff structure to enable BPDB to operate on a sound financial basis.

17. The Project is technically feasible and economically justified and is suitable for Bank financing. In view of the unprecedented setbacks recently experienced by the Bangladesh economy and the weak balance of payments position of the country, the Mission considers financing on concessional terms justified. The loan from Bangladesh Fisheries Development (Loan No. 129-BAN SF) made earlier in 1973 had a grant element of about 60 per cent. However, in the light of the case that Bangladesh has for more concessional terms due to its very difficult economic situation, a grant element of 64 per cent is judged appropriate. In this specific Project, however, procurement considerations and the indivisibility of the major project component, the gas turbine station, has meant that the blend from Special Funds and ordinary resources required results in grant element of 74 per cent. In order to maintain the desired overall grant element of 64 per cent for Bangladesh under the Special Funds Supplementation Scheme recently adopted by the Bank, the grant element for this Project (74 per cent) has been compensated for in the (separately) proposed Chittagong Port Project which has a grant element of 49 per cent.

18. The Mission recommends that under the Special Funds Supplementation Scheme, a loan for \$9.25 million from Special Funds resources and a loan of \$1.20 million from ordinary capital resources be provided. The loan from Special Funds would be at 1 per cent interest, 40-year term including a 10-year grace period; the loan from ordinary capital resources would be 7-1/2 per cent interest, 20-year term including a 4-year grace period. It is also recommended that the services of the management, accounting and financial consultants be provided to BPDB in the form of a grant of \$250,000 since this advisory technical assistance is for the purpose of strengthening the institutional and financial aspects of BPDB.

IV. LEGAL INSTRUMENTS AND AUTHORITIES

19. Drafts of the following loan and technical assistance documents are circulated herewith:

- (i) Loan Agreement (Ordinary Operations) between the Government of the People's Republic of Bangladesh and the Bank;

- (ii) Loan Agreement (Special Operations) between the Government of the People's Republic of Bangladesh and the Bank;
- (iii) Project Agreement (Ordinary and Special Operations) between the Bank and BPDB;
- (iv) Side Letters Nos. 1-5; and
- (v) Technical Assistance Agreement between the Government of the People's Republic of Bangladesh, BPDB and the Bank.

The Bank's Loan Regulations No. 1 dated 28 November 1967 are incorporated in the draft Loan Agreement (Ordinary Operations) subject to the modifications referred to in Section 1.01 of the draft Loan Agreement (Ordinary Operations). The Bank's Special Operations Loan Regulations dated 6 May 1969 are incorporated in the draft Loan Agreement (Special Operations), subject to the modifications referred to in Section 1.01 of the draft Loan Agreement (Special Operations).

20. Under the Constitution of the People's Republic of Bangladesh, the Government is authorized to borrow from the Bank. Under the BPDB Order, BPDB is empowered to enter into and implement its obligations under the Project Agreement.

V. THE ECONOMY

21. A Report entitled "Economic Report on Bangladesh" (BAN:Ec-1) had been circulated to the Board in February 1973.

22. Bangladesh, with 75 million people and a per capita income of around \$70 is one of the world's most densely populated countries. More than 80 per cent of the population is dependent on agriculture which accounts for 55 per cent of the Gross Domestic Product (GDP). Agricultural productivity, specially for the major crop -- rice -- is very low; about one-third of the world average.

23. During the 1960's, while rice production increased at an average annual rate of 2 per cent, population grew by 3 per cent. The result has been a steadily increasing gap between rice production and requirements. The cyclone of 1970 and the events of 1971 resulted in substantial declines in agricultural output. The disruption in transport and distribution of inputs, coupled with drought, affected the major (Aman) rice crop (July-September) in 1972. This has widened the earlier estimated gap in food supplies in 1972/73 from 2.5 million tons to about 3.0 million tons. Jute production, however, was at a satisfactory level.

24. The manufacturing sector contributes about 9 per cent of GDP. Two-thirds of industry is agro-based. Jute and cotton textiles provide employment for about half the total industrial labor force. Jute and cotton textiles are by far the most important industries, in terms of value-added, employment and foreign exchange earnings. Sugar, tea processing, tobacco, and leather are some of the other established industries. In the latter half of 1960's, plants for production of fertilizer, chemicals, and pharmaceuticals, cement, paper, steel, and engineering goods and a petroleum refinery were set up. Except for natural gas, Bangladesh has no significant proven mineral deposits.

25. A major problem seems to be the rapidly rising prices. During the last 12 months, the cost of living has increased by 60 per cent, which is at least 100 per cent above the 1969/70 level. Failure of the major Aman crop in 1972, and the non-realization of about 70 per cent of the planned government revenue collection during June-December 1972 with the consequent reliance on deficit financing are mainly responsible for the price rises.

26. The Five-Year Plan for Bangladesh (1973-74 - 1977/78) is in the process of being finalized for implementation in late 1973. Preliminary indications suggest that the size of the Plan may be around Tk. 50,000 million. At least half of ~~this~~ amount will have to come from external sources. It is recognized by the Government that great efforts would be needed to mobilize domestic resources to meet the requirements in

the Plan. A shortfall in the expected external assistance and/or failure of crops is likely to affect seriously the implementation of the Plan. The Plan is expected to allocate over one-third of the resources to agricultural programs, seek self-sufficiency in food and industrial raw materials, and obtain adequate export earnings. Investment in other sectors would be geared to the major strategy for the agricultural and export sectors.

VI. COMPLIANCE WITH ARTICLES OF AGREEMENT

27. I am satisfied that the proposed loans and technical assistance would comply with the Articles of Agreement of the Bank.

VII. RECOMMENDATION

28. I recommend that the Board approve the proposed loans and technical assistance in terms of the following resolutions:

"LOAN NO. -BAN : BANGLADESH WEST ZONE
POWER PROJECT

LOAN NO. -BAN(SF): BANGLADESH WEST ZONE
POWER PROJECT

Approval of loans from the Bank's ordinary capital resources and Special Funds resources to the People's Republic of Bangladesh in an aggregate amount equivalent to US\$10.45 million.

RESOLVED:

That the Bank shall make:

(i) a loan from its ordinary capital resources to the People's Republic of Bangladesh in an amount in various currencies equivalent to one million two hundred thousand United States dollars (US\$1,200,000) to mature on and prior to 1 June 1994 and to bear interest (including commission at the rate of 1% per annum) at the rate

of 7-1/2% per annum and to be upon such other terms and conditions as shall be substantially in accordance with the terms and conditions set forth in the form of Loan Agreement (Ordinary Operations) between the People's Republic of Bangladesh and the Bank and the form of Project Agreement between the Bank and the Bangladesh Power Development Board which have been presented to this meeting.

(ii) a loan from its Special Funds resources to the People's Republic of Bangladesh in an amount in various currencies equivalent to nine million two hundred fifty thousand United States dollars (US\$9,250,000) to mature on and prior to 1 June 2014 and to bear interest (including service fee at the rate of 3/4 of 1% per annum) at the rate of 1% and to be upon such other terms and conditions as shall be substantially in accordance with the terms and conditions set forth in the form of Loan Agreement (Special Operations) between the People's Republic of Bangladesh and the Bank and the form of Project Agreement between the Bank and the Bangladesh Power Development Board which have been presented to this meeting.

T.A. NO. - BAN : BANGLADESH WEST ZONE
POWER PROJECT

Approval of technical assistance grant to the Government of the People's Republic of Bangladesh for the Bangladesh Power Development Board in an amount not exceeding the equivalent of US\$250,000.

RESOLVED:

That the Bank shall make a technical assistance grant to the Government of the People's Republic of Bangladesh for the

Bangladesh Power Development Board in an amount not exceeding the equivalent of two hundred fifty thousand United States dollars (US\$250,000) to be upon such terms and conditions as shall be substantially in accordance with the terms and conditions set forth in the form of Technical Assistance Agreement between the Government of the People's Republic of Bangladesh and the Bangladesh Power Development Board and the Bank which has been presented to this meeting."

SHIRO INOUE
President

11 September 1973