

Final Report
to

OFFICE OF ENERGY
AGENCY FOR
INTERNATIONAL DEVELOPMENT
WASHINGTON, D. C.

TECHNICAL ASSISTANCE
IN CONVENTIONAL ENERGY
TO PETROBANGLA
PEOPLES' REPUBLIC OF BANGLADESH

By
Bechtel National, Inc.

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Section 1

INTRODUCTION

1.1 BACKGROUND

Under contract DAN-5724-C00-1085-00 to the U.S. Agency for International Development, Bechtel National, Inc. has provided "Technical Assistance in Conventional Energy" to Petrobangla, the national oil company in Bangladesh. The program is described in the Letter of Agreement between the Government of the Peoples' Republic of Bangladesh and the United States of America for Technical Assistance in Conventional Energy (AID Project No. 936-5724) dated February 1, 1983 (Appendix A). This report covers the period from project inception through February 17, 1984 and is the final report for this project, as called for in the contract.

1.2 GOALS AND OBJECTIVES

The overall broad objectives of the Technical Assistance program are:

- o To contribute to reducing petroleum imports and the consequent drain on foreign exchange.
- o To enable Bangladesh to mobilize its human and capital resources, as well as private capital and technology, for the exploration, exploitation, and utilization of its natural gas resources and to continue its search for petroleum.

1.3 SCOPE

The original scope of the country level activities is comprised of work items identified in Annex I of the Agreement dated February 1, 1983 (Appendix A). These work items are in the nature of technical assistance and do not include capital assistance or the purchase of capital equipment.

Specifically, the work items are:

- 1) Provide assistance in the establishment of a central data bank for all geophysical, geological, drilling, testing, and production data from all fields.
- 2) Provide geological and geophysical assistance to the Exploration Division of Petrobangla to develop a program for digital seismic testing of all fields and for analysis and interpretation of this seismic data.
- 3) Provide assistance in the establishment of an in-country stratigraphic interpretation capability.
- 4) Assist in the development of a continuing program of production testing for all gas wells.
- 5) Provide a team of production engineers to review the operations of existing gas fields, separation facilities, and transmission pipelines in order to assess their reliability, to recommend improvements, and to assist Petrobangla in implementation of the recommended improvements.
- 6) Conduct seminars in Bangladesh to provide practical training in critical field operations, including well planning, materials procurement, cementing, casing, drilling fluids, well completions, and testing.
- 7) Provide additional technical services, as required, which complement and facilitate this program.

During this first phase, efforts were concentrated on Items 1 and 6. During early October, 1983 the program was reevaluated and a revised Workplan prepared. Items 2, 3, 4, 5, and 6 were eliminated and major emphasis concentrated on Item 1, the Data Center as a Phase 2 program. AID elected to terminate the program in January 1984 without undertaking Phase 2.

Appendix B contains copies of the original January 1983 Work Plan and the revised Work Plan dated October 22, 1983, as well as the October 30, 1983 letter from the Mission Director to the External Resources Division of the Ministry of Finance and Planning which revises the Work Plan significantly.

1.4 PERIODS OF ACTIVITY

Project-related activities can best be analyzed in three distinct phases:

- Period I: Program formulation - January 15, 1982 to April 23, 1982
- Period II: Project definition and negotiation - April 24, 1982 to March 25, 1983
- Period III: In-country activities - March 26, 1983 to February 15, 1984

Appendix C provides a summary of activities during each of these periods.

1.5 PROJECT ORGANIZATION

The project was staffed by employees of Bechtel National, Inc., and its subcontractor, Dresser Petroleum Engineering Services.

The project organization illustrated in Figure 1-1, shows the interaction between the Bechtel team members and their Bangladesh counterparts. The overall lead role of the Bangladesh Government Steering Committee is also highlighted.

The Resident Manager, Mr. Frank Powlan, had responsibility for the day-to-day management of the program in Bangladesh, including supervision of personnel, direction of the work effort, coordination with the Steering Committee and the U.S. AID Mission in Dhaka, and cost and schedule control.

Mr. Powlan reported to:

Mr. J.F. Houle, who supervised the overall Technical Assistance in Conventional Energy program covered by the Bechtel contract with the Agency for International Development in Washington. Mr. Houle was responsible for the overall performance of the Bechtel management and technical staff in Bangladesh. He ensured that all appropriate resources were made available, that the work was accomplished in accordance with the Work Plan, and that all contractual obligations were met.

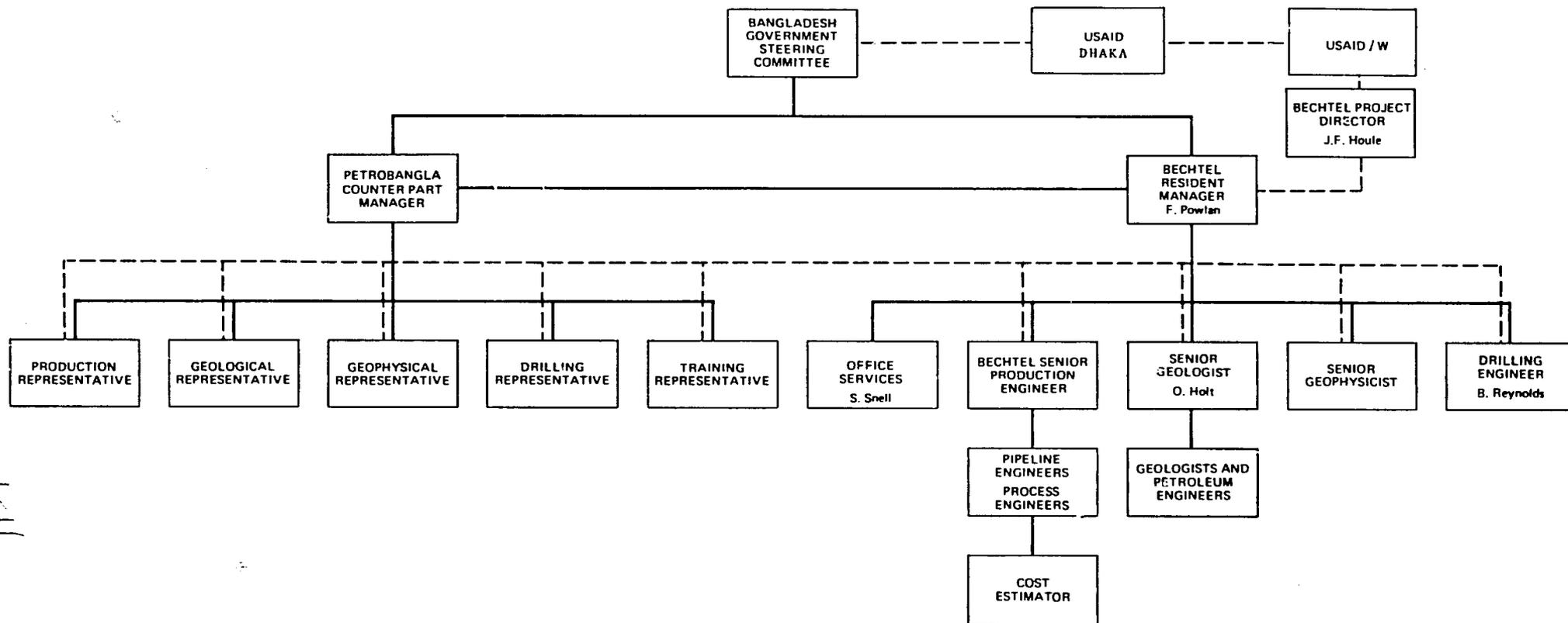


Figure 1-1 PROJECT ORGANIZATION CHART

The Senior Geologist, Mr. Olin Holt, provided assistance in collection and review of geologic and geophysical data for inclusion in the Data Center, and evaluated seismic data as to sufficiency.

The Drilling Engineer, Mr. Ben Reynolds, organized, prepared, and directed a seminar program in Petroleum and Drilling Engineering.

A steering committee was established and included the following people:

- Nuruddin Kamal, Chairman: Joint Secretary of the Ministry of Energy for Petroleum
- Giasuddin Ahmed, Director of Exploration, Petrobangla
- M. Roushannuzaman, Chief Manager, Petrobangla
- M. Mosharraf Hossain, Director of Planning, Petrobangla
- M. Afsaruddin, Chief Manager, Training, Petrobangla
- Susan Downs, USAID

The Chairman of Petrobangla took an active role in the project, as did the Additional Secretary of the Ministry of Energy. The Steering Committee met approximately six times during the period April through December 1983.

A Project Manager-Counterpart to Mr. Powlen was appointed at the outset of in-country activities: Mr. Afsaruddin. He was replaced at mid-year by Mr. Baddradoja and in December by Mr. Ashraf.

Counterparts for other contractor personnel were also appointed by the Steering Committee.

The Resident Manager met at least weekly with the USAID Mission energy specialist to ensure proper coordination and to provide briefings on significant project activities.

Section 2

PROJECT ACCOMPLISHMENTS

The original approved Work Plan, dated January 1983, defined six specific areas of activity for Bechtel and Petrobangla to focus on:

1. Establishment of a Central Data Bank
2. Development of a program for digital seismic testing, analysis, and interpretation
3. Establishment of in-country stratigraphic interpretation capability
4. Development of a production testing program for all wells
5. Review of production, separation, and pipeline facilities
6. Training in petroleum and drilling engineering

During the limited time of in-country activities by the technical specialists provided by Bechtel and its subcontractor Dresser, only two activities were undertaken, namely Activity 1 and Activity 6:

- The Technical Specialist for Activity 1, a Senior Geologist, was in Bangladesh for a period of 13 weeks and was scheduled to return to Dhaka once AID and Petrobangla agreed upon adjustments to the Work Plan. AID decided to stop work on this project before completion; consequently, Activity 1 was never completed.
- The Petroleum Engineer assigned to Task 6 was in Bangladesh 15 weeks and was able to successfully complete a seminar series.

Therefore, the analysis of accomplishments and benefits on the following pages focuses only on two activities (1 and 6).

2.1 ESTABLISHMENT OF A CENTRAL DATA BANK

2.1.1 Purpose

The intensification of activities in the petroleum exploration and development sector in recent years has exposed the geologic, geophysical, and reservoir data-keeping as an area which required improvement. This data is of prime importance to consultants involved in planning new exploration activities with funds received from the various donor countries and international lending institutions. Data has been kept at a number of offices within Dhaka and in other cities where the various part-statal oil companies have their offices, such as:

- Bangladesh Gas Fields Co. Limited
- Bakrabad Gas Company Ltd.
- Titas Gas Transmission and Distribution Co. Ltd.
- Petrobangla

The establishment of a Central Data Bank was intended to provide a single source for all data concerning oil and gas occurrence.

2.1.2 Organization and Relation to Gas Companies

The Data Center is to be organized under the auspices of Petrobangla but is intended to serve all segments of the oil and gas industry. Original data will be maintained in the Data Center and a copy center will duplicate the data as required. The intent of Petrobangla is to maintain a library, a seminar room, a copy center, and a data repository at one central location in Dhaka.

Initially, the Manager of the Data Center for Petrobangla was Mr. Afsaruddin, who is the Chief Manager of Training for Petrobangla. He was replaced in June 1983 as Counterpart Project Manager and Chief Manager in Charge of the Data Center by Mr. M. Badruddoja, a geologist.

Three technical people were assigned to the project by Petrobangla and have catalogued the data which was made available in the Data Center.

They have also catalogued the data available in the Geological and Geophysical Divisions of Petrobangla and in other areas where data is stored. The data presently located in the Data Center has been catalogued but a filing system for storage and retrieval remains to be developed.

2.1.3 Layout

Mr. Olin Holt, Senior Geologist, prepared floor plans for different arrangements of the Data Center, the library, the drafting department, and a seminar room at each of three different locations. Due to space limitations compromises were necessary for all floor plans. Space for the Data Center was assigned by Petrobangla on the sixth floor of 107 Motijheel Commercial Area. Several alternate floor plans for this final location were drawn. This site contains an area for a library and a seminar room in addition to the Data Center in 2,445 square feet of floor space.

Equipment and files were moved from the fourth floor to the sixth floor of 107 Motijheel. Equipment was arranged according to the final version of the floor plan submitted to Mr. Badruddoja on June 29, 1983. Letters were sent out by Mr. Badruddoja to different departments within Petrobangla requesting that pertinent data be sent to the Data Center. The different departments and operating companies within Petrobangla were reluctant to submit the data in their possession to the Data Center unless copies were immediately returned to them. The setting up, staffing, and assembly of the high amount of data progressed at a slow pace, since permission was not received to collect data from organizations other than Petrobangla. A minimum of six to nine months will be required to completely organize the available material and place it in the Data Center in a usable format.

2.1.4 Proposed Method of Operation

A proposed method of operation was developed for the Data Center. The data can be described as follows:

Geologic Data:

- Structural maps
- Isopach maps of various formations - especially the productive zones
- Geologic maps of known fields and structures
- General Geologic reports of Bangladesh
- Specific Geologic reports of fields and other areas of interest
- Well log suites of all wells drilled in Bangladesh
- Computer processed well log interpretations

Engineering Data:

- Core reports
- Reserve estimates
- Well test information
- Production data
- Well Completion reports

Geophysical Data:

- Magnetometer information
- Gravity information
- Seismic information
 - Seismic sections
 - Seismic maps
 - Seismic reports

The basic organizational structure of the data bank is expected to adapt to the following:

- The Jamuna River will be the dividing line between districts considered to be in East and West Bangladesh. For each district the data will be filed under the headings Geological and Geophysical and separated into onshore and offshore. Districts, areas, fields, and wells will be identified accordingly. Additional information not amenable to this structure will be filed under their individual headings.
- Emphasis will be placed on obtaining all information from the following producing or known gas fields:

Chhatak	Bakhrabad
Sylhet	Semutang
Kailastila	Kutubdia
Rashidpur	Begumgonj
Habiganj	Kamta
Titas	Beanibazar
Feni	Patharia

Data would be available in its original form for review at the Data Center. Facilities will be provided for reproduction of data needed at other locations. A problem at the start is that the various par-statal companies, while willing to provide data to be included in the Data Bank, need to keep copies in active files at their various offices. Consequently, before they will be agreeable to contribute the data within their possession, a means to provide them with copies must be implemented.

2.1.5 Personnel Needs

Figure 2-1 provides a recommended staffing organization for the Data Center. Descriptions of the various job functions follow:

- Chief Librarian: Organizes materials, establishes and maintains card files, computer indexes, cross references, etc. Supervises a staff of clerks, computer programmers and operators, and reproduction equipment operators.

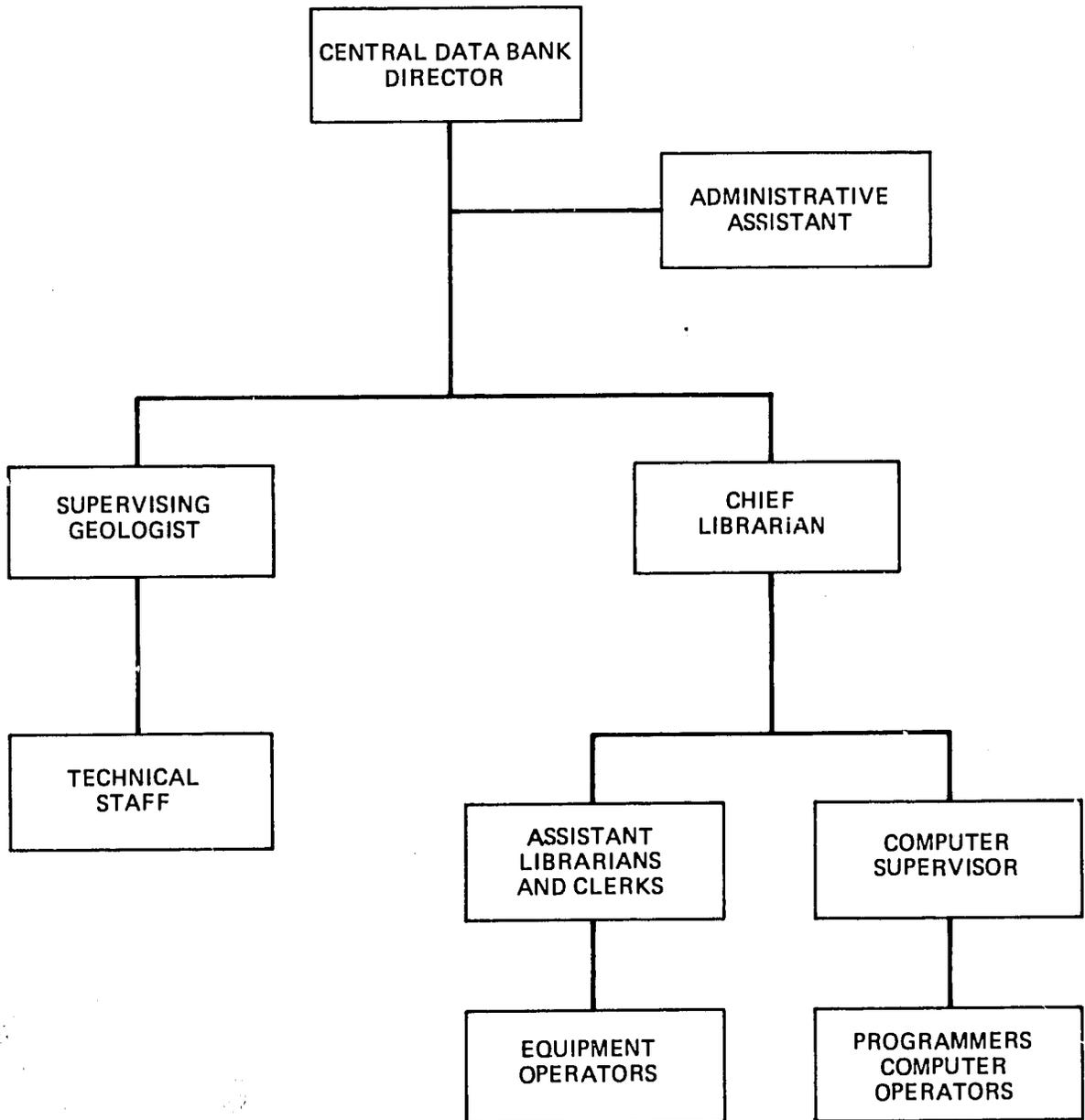


Figure 2-1 CENTRAL DATA BANK ORGANIZATION CHART

- Supervising Geologist: Reviews all data received at center, provides guidance in proper cataloging, performs data searches upon request. Coordinates closely with parastatal companies, Bangladesh Petroleum Institute, Ministry of Energy, and other agencies. Supervises a staff of junior technical people.
- Computer Supervisor: Supervises computer programmers and operators of IBM-PC (or equivalent) equipment.
- Director of the Control Data Bank: Directs staff, coordinates with parastatal companies, maintains budgets, provides administrative and management guidance. Meets regularly with Petrobangla directors and with project managers of externally-funded petroleum development projects to provide support and data.

2.1.6 Equipment Needs

A Xerox Model 7000 or equivalent reproduction machine was determined by Petrobangla to be required for use by the center as well as outside groups. The copier should have technical specifications to meet the local conditions for electricity reliability, equipment protection, and service availability. An Ozalid-type blue-print machine is also required.

A desk-top business computer (IBM PC or similar) with screen, printer, and hard-storage capabilities, along with the necessary software, will be required to enable initial operation of the Data Center. The computer should have technical specifications to meet the local conditions for electricity reliability, equipment protection, and service availability.

Space located two floors below the Data Center has been allocated by Petrobangla as the processing center for the seismic data to be generated by the World Bank Program for seismic exploration. The World Bank Program is a two-year effort and Petrobangla feels that the need for a fully functioning Data Center should relieve their top priority. Based on this assessment, Petrobangla requested that AID supply the necessary equipment for the Data Center and the necessary effort to index and file reports and drawings to be stored in the center. The cost of the

equipment listed above was estimated at U.S. \$200,000. AID Mission did not approve and would not provide additional funds to purchase the equipment.

2.1.7 Benefits

The Central Data Bank will provide a systematized, consistent, and industry-wide organization to meet the expanding data needs of the petroleum sector in Bangladesh.

It will significantly reduce the time spent by senior study leaders, geotechnical specialists and others in searching for data, thus freeing them for the more important tasks of interpretation and planning.

It will reduce the costs and duration of externally funded projects such as the World Bank seismic work, the ADB funded Second Hydrocarbon Development Project, and other similar programs.

2.2 TRAINING OF DRILLING ENGINEERS

A six-week Drilling Engineering Training Class for drilling personnel was completed in Dhaka on July 7, 1983. The course included the following topics:

1. Aspects of Rotary Drilling
2. Drilling Equipment
3. Basic Chemistry
4. Drilling Mud Functions and Testing
5. Composition of Water Based Muds
6. Geology
7. Rheology
8. Contamination
9. Stuck Pipe and Fishing Techniques
10. Lost Circulation
11. Inhibitive Muds

12. Oil Muds
13. Lubricity
14. Solids Control
15. Pressure Control
16. Drilling Bits
17. Hydraulics
18. Logging Tools and Logs
19. Pressure Prediction from Logs, from Seismic, and while Drilling
20. Casing Design
21. Cementing
22. Leak off Tests
23. Drill String
24. Corrosion
25. Directional Drilling
26. Workover/Completion Fluids
27. Completion Techniques - Packers
28. BOP Equipment
29. Drill Stem Testing
30. Elements of a Drilling Program
31. Elements of a Final Drilling Report

2.2.1 Attendees and Grades

The drilling engineers' course was completed July 7th. Three tests were given during the six weeks. All participants received passing grades. The class average grade was 92.8 percent. Attendees included:

D.H. Bashir Ahmed
Fazlul Karim
Akkas Ali
Jahangir Kabir Jr.
A.K.M.S. Rahman
Anwarul Islam
Naseer Ahmed

The original list of seminar attendees included 16 persons of which five attended the first day. On advising Petrobangla (Mr. Afsaruddin) of the value of this training, four additional attendees arrived the next day. Two additional trainees left the class the following day because the course was highly structured for drilling engineers and they were geologists, not petroleum engineers.

2.2.2 Benefits

The program for drilling engineers provided an opportunity to acquaint participants with current U.S. drilling practices, allowed them to improve their comprehension and participation in the development of well drilling programs and furthered their abilities in interpretation of drilling data.

The benefits accruing to Petrobangla from the drilling engineers' course can be enhanced by follow-up opportunities for the course participants. Seven participants showed sufficient interest to complete the course. This speaks highly of the caliber of these personnel and they should be given additional opportunities for advancement.

2.2.3 Additional Training Needs in Drilling Division

The subject matter to be covered in a training course for drilling engineers is so extensive that six weeks is too short a time period to provide in-depth training to these relatively inexperienced personnel. Theoretical studies should be combined with practical experience for a minimum of six months in order to have a long lasting positive effect.

2.3 ORGANIZATION OF ADDITIONAL TRAINING PROGRAMS

An extensive training program should be instituted by Petrobangla in all phases of exploration, production, and transportation of natural gas and natural gas liquids.

2.3.1 Reservoir Engineers

A reservoir geology course is recommended to teach geologists the practical use of well logs, core information, and other types of data in

reservoir evaluation and reserve estimation. This course should include the subjects discussed in the following subparagraphs.

- A review of geologic processes; especially those which influence the deposition of sedimentary rocks. Structural geology and the types of traps which can be formed by different structures.
- Sedimentation and stratigraphy; emphasis placed on those depositional environments and sedimentary rock types which are known to be productive in Bangladesh.
- The basics of hydrocarbon generation formation of petroleum, migration, and source rocks. Essentials for providing hydrocarbon traps and the various types of traps. Traps which are likely to occur in Bangladesh.
- Reservoir rock properties which include lithology, porosity, permeability, fluid saturation - oil, gas, and water. The use of core analysis and well log analysis for the determination of reservoir properties.
- The use of well logs to determine reservoir properties. Data used in a study of reservoir geology and reservoir properties as derived from well logs. Different log types with the advantages, disadvantages, and uses of each log type - interpretations of combination of the various log types - log types run in Bangladesh - log types which the known geology and sediment types would indicate to be of most benefit - working the log suites of the gas fields in Bangladesh.
- Use of geophysical methods in hydrocarbon exploration and development - reflection seismic methods and their application to exploration and development geology. Data acquisition, data processing, and the interpretation of seismic lines and sections - structural and stratigraphic interpretational procedures.

The application of these methods for estimation of reserves in selected Bangladesh gas fields - will improve the reviewing and analyzing of available data for the selected fields and arriving at more accurate reserve estimates. Application of the methods learned in the above course will result in positive recommendations for collection of additional data which will also improve the reserve estimates of the selected fields.

2.3.2 Recommendations for Additional Programs

A petroleum engineering training program is recommended for Petrobangla covering the following topics:

- Design of drilling programs
- Materials and logistics planning
- Introduction to drilling fluids technology
- Mud testing and monitoring
- Introduction to well cementing
- Well completion techniques
- Introduction to reservoir rock and fluid properties
- Well testing and sampling techniques
- Well workovers

Section 3

PROBLEMS ENCOUNTERED

As in any complex program such as the technical assistance program, many problems stand in the way of project execution. These problems lead to delays, revisions to schedules, adjustments to work programs, and misunderstandings. The Contractor must attempt to maintain project momentum and encourage continued cooperation among the various entities and agencies involved. Unfortunately, he is seldom able to satisfy all parties.

The brief discussion that follows is divided among the three periods of project activity.

3.1 PERIOD 1 - PROJECT FORMULATION

Bechtel played a role subordinate to A. D. Little in this phase, providing advice, estimating costs, and responding to questions. Several problems developed:

- The Ministry of Energy and Petrobangla did not appear to be prepared for serious discussions of their energy program and the role that AID sponsored Technical Assistance might play in it.
- In late March 1982, shortly after the departure of the evaluation team, an overthrow of the democratically elected government took place in Dhaka. All senior level positions in the ministries and parastatal companies were changed. It was not until June 1982 that AID Dhaka could continue discussions with the government. At that point, there were few individuals above the middle management level with prior knowledge of the issues.
- The AID Mission in Dhaka did not have a strong energy focus in its previous activities and consequently was unable to provide much assistance in finding a suitable activity within the energy sector which was not already being undertaken by other donor agencies.

3.2 PERIOD 2 - PROJECT DEFINITION AND NEGOTIATION

Bechtel drafted four Work Plans during the fall of 1982 for review by AID Washington. None of these were reviewed in Dhaka with the host country. This resulted in their not having a detailed Work Plan in their hands until March 1983, after the start of in-country activities.

The External Resources Division, Ministry of Finance and Planning, did not sign the Letter of Agreement until February 1, 1983. This severely delayed project start.

3.3 PERIOD 3 - IN-COUNTRY ACTIVITIES

The Steering Committee requested major revisions to the Work Plan in May 1983. This request resulted from their disagreement and from understandings arrived at by their predecessors in 1982.

In August 1983, Petrobangla requested that the Work Plan concentrate only on the Data Center and that a large share of available funds be allocated to the purchase of office equipment. This resulted in some disagreement with the AID Mission over the purpose of the Technical Assistance program.

Delays in receiving AID approvals for purchases of appliances and thereby household furnishings led to the extended stay of field personnel in hotels, increasing costs.

Petrobangla was not able to provide a suitable site for seminars. Bechtel subsequently arranged space at their office/housing compound.

Poor attendance at the Petroleum/Drilling engineering seminars.

AID Washington expressed reluctance to approve travel for various technical specialists until they were convinced that Petrobangla had designated counterparts and that Petrobangla had established a functioning Steering Committee.

Petrobangla had made no plans for locating a Data Center and consequently much time was spent in surveying various potential sites and drafting plans for layouts.

Petrobangla did not provide transportation as called for in the agreement.

Section 4

RECOMMENDATIONS

During the project formulation phase, Bechtel needed more time in-country with the middle level managers in Petrobangla. This would have been most helpful for determining the weaknesses within their organizations as well as in becoming more familiar with their on-going programs. While the change of government in 1982 resulted in many transfers at the top levels, most of the middle managers who were responsible for training staff, carrying out programs, and planning future activities, remained in their jobs.

Petrobangla and the Ministry of Energy did not appear to have been well prepared for the AID Definitional Mission. There were few defined programs or ideas presented during the two weeks of meetings in Dhaka. Perhaps in the future some means can be found to encourage the host-country to gather their recommendations concerning program ideas together in advance of these meetings.

Once the broad framework for a Technical Assistance program is agreed upon, the responsible managers of the Host Country team should be given the opportunity to review the draft Work Plan. This might avoid the problem we encountered where the Steering Committee felt unfamiliar with our program.

Once in-country activities have commenced, any major changes in the scheduled arrival of technical staff can add to costs and delay project completion and therefore should be approached very cautiously.

AID Washington may wish to consider delegating certain approval authority to Mission personnel. Approvals of field or overseas purchases of office and housing needs is a case in point. The delays and potential for miscommunications can thus be avoided.

Section 5

COSTS

The approved Work Plan dated January 1983 provided a budget of \$1,220,000 to cover the six areas of activity described in Section 2. In October of 1983 the revised Work Plan reduced the scope to include only activities one and six and provided for a Second Phase Program to continue the Data Center organizational effort.

The AID-Washington letter of January 19, 1984 reduced the Phase 1 budget to \$781,210. No funds were allocated for Phase 2.

The actual costs accumulated to date total \$733,972. In addition, Dresser Petroleum Engineering Services, Inc. has made an application for termination costs. The government audit indicates agreement on \$26,039 of additional costs.

We have estimated actual final costs to total \$776,889 as shown in Table 5-1 below:

Table 5-1

BUDGET AND EXPENDITURES

<u>Category</u>	<u>Budget</u> \$	<u>Final</u> <u>Estimated Costs</u> \$
Salaries and Wages and Payroll Additives	190,843	211,419
Consultant Fees and Subcontracts	229,176	218,435
Travel and Subsistence	90,506	101,693
Other Direct Costs	93,251	61,901
Overhead	55,369	59,717
General and Administrative	<u>51,045</u>	<u>53,098</u>
Total Costs	710,190	706,263
Fixed Fee	<u>71,020</u>	<u>70,626</u>
TOTAL COSTS AND FEE	<u>\$781,210</u>	<u>\$776,889</u>

Appendix A

LETTER OF AGREEMENT BETWEEN THE GOVERNMENT OF THE
PEOPLES' REPUBLIC OF BANGLADESH AND THE UNITED STATES
OF AMERICA FOR TECHNICAL ASSISTANCE IN CONVENTIONAL
ENERGY (AID PROJECT NO. 936-5724) DATED FEBRUARY 1, 1983

1-

UNITED STATES OF AMERICA

AGENCY FOR INTERNATIONAL DEVELOPMENT

Dhaka, Bangladesh

February 1, 1983.

Mr. M.A. Matin Lasker
Deputy Secretary
External Resource Division
Sher-e-Bangla Nagar
Dhaka

Subject: Technical Assistance in Conventional Energy
under Project No. 936-5724

Dear Mr. Lasker:

During the last few months representatives of A.I.D., Arthur D. Little, Inc., and the Bechtel Corporation have been holding discussions with the Ministry of Energy and Mineral Resources to design a program of technical assistance. Pursuant to those discussions and to the authority contained in the Foreign Assistance Act of 1961, as amended, the Agency for International Development is prepared to finance a program of technical assistance to the Ministry of Energy and Mineral Resources. The value of that assistance would be up to U.S. \$1.2 million.

This Technical Assistance will be provided by Bechtel Corporation. The assistance, which is described in "Annex I," is based on the priority areas identified in the Arthur D. Little, Inc. Report "Technical Assistance Program in Support of Conventional Energy Resource Development in Bangladesh." The topics covered in this technical assistance include:

1) Development of sufficient data to allow dependable estimates of recoverable reserves for each gas field.

2) Preparation of a plan for improving the dependability of the natural gas production and supply system.

3) Improvement of Petrobangla's drilling operations by providing classroom seminars and practical field training in critical drilling operations.

In order to take full advantage of the technical assistance, the Bangladesh Government is requested to provide office space and telephone service for the Bechtel personnel, a fulltime senior staff member from Petrobangla to work with the Bechtel team, and space for a permanent data center, where geophysical drilling and production data would be stored. This data center could be located either in a space especially created for the project or in an existing facility. The Bangladesh Government is also requested to provide resources, including funds, management, and staff for the maintenance and operation of this project. The specific BDG counterpart personnel who will be required will be specified by the Bechtel Work Plan. Designated BDG counterpart personnel are subject to AID clearance.

We also request that a steering committee be formed to provide guidance and to receive the processed information. The membership should be drawn from high levels of the Planning Commission, Petrobangla and the Ministry of Energy and Mineral Resources.

Finally we request that you agree that the consultants will be free from any taxation, customs, or fees imposed under the laws in effect in Bangladesh, and in general that the resident personnel will be given "privileged person" status.

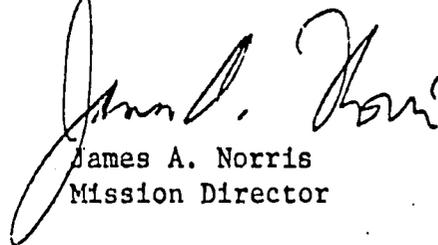
By signing in the space provided below you signify that the Government of Bangladesh agrees to implement the program of technical assistance that Bechtel Corporation is to provide to the Ministry of Finance and Planning. Please sign all copies of this letter and the stencil and return six copies plus the stencil to our office. The other copy is for your file.



Martin Laskar
Joint Secretary, ERD

February 2, 1983
Date

Sincerely,



James A. Norris
Mission Director

ANNEX 1

Project Description:

The program will include the following activities:

Project 1. Technical Assistance in Natural Gas Development, Production, and Delivery Systems.

The purposes of Project 1 will be the following:

- to develop sufficient data to allow dependable estimates of recoverable reserves to be made for each gas field.
- to improve the dependability of the natural gas supply system, and
- to improve Petrobangla's drilling operations by providing classroom seminars and practical field training in critical drilling operations.

Although a number of estimates of Bangladesh's natural gas resource have been made in the past, it is likely that the extent of the resource is not accurately known. Accordingly, a basis for tripling natural gas consumption called for in the second five-year plan does not exist. Available data indicates that, if this goal is not reached by 1984/85, the foreign exchange cost of Bangladesh's oil imports could exceed its export earnings for that year.

The work activities will be selected to address deficiencies in the reserve estimations by addressing such factors as the establishment of a central data bank for all drilling, testing, and production data from all fields, providing geological and geophysical assistance to the exploration division of Petrobangla to develop a program for digital seismic testing of all producing fields and in the analysis and interpretation of seismic data. Work activities will also be selected to estimate the long-term needs for the processing of digital seismic data and the costs involved, and to provide an in-country stratigraphic interpretation capability. The project will include the development of an on-going program of production testing in all producing gas wells.

Work activities will also be selected to review the operation of existing gas fields, separation facilities and transmission pipelines, in order to assess their reliability, to recommend improvements, and to assist Petrobangla in implementation of recommended improvements.

ANNEX 1 (Contd)

These activities can include the survey of all production and transmission facilities to recommend improvements in maintenance and operation of wells and separation facilities to evaluate the need for corrosion protection and pressure control systems, to develop designs for the modification of facilities for the improvement of their performance and reliability, and to develop a longterm maintenance program involving such components as well workovers, pipeline cleaning, and calibration of controls. Finally, the potential for increasing production from existing wells will be evaluated and recommendations made.

Concomitantly, and with emphasis on the drilling operation, seminars will be conducted in Bangladesh to provide practical training in critical field operations. Included will be well planning, materials procurement, and logistics; mud operations; well casing and cementing; well completions and testing. The practical aspects might be enhanced by utilizing the operations of the new Dresser-Atlas rig as a training vehicle, for which it appears no technical assistance is being provided beyond the delivery and installation of the equipment.

Work Plan

The detailed activities will be described in a Work Plan which Bechtel will prepare and submit for review and comment. As soon as the Work Plan is in final form, Bechtel will identify the key personnel to be provided in the implementation of the work and provide their qualifications. Work can began immediately thereafter.

The Work Plan will describe the counterparts to be provided to the Bechtel staff and describe their functions and duties.

Project Rationale

The rationale for the project and the work activities included was developed by Arthur D. Little, Inc. (ADL) personnel and is contained in their report, "Technical Assistance Program Options in Support of Conventional Energy Resource Development in Bangladesh."

2

Appendix B

ORIGINAL WORK PLAN

DATED JANUARY 1983

REVISED WORK PLAN

DATED OCTOBER 22, 1983

LETTER FROM MISSION DIRECTOR TO
THE EXTERNAL RESOURCES DIVISION
OF THE MINISTRY OF FINANCE AND
PLANNING REVISING THE WORK PLAN

DATED OCTOBER 30, 1983

K

**TECHNICAL ASSISTANCE
IN THE DEVELOPMENT OF
CONVENTIONAL ENERGY RESOURCES
FOR THE GOVERNMENT
OF THE PEOPLE'S REPUBLIC OF BANGLADESH**

WORK PLAN



**Bechtel National, Inc.
January 1983**

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1.0 INTRODUCTION

This Work Plan has been developed by Bechtel National, Inc., (Bechtel) and is intended to meet the requirements of Article 1, Section V of the Bechtel/AID/W Contract DAN-5724-C00-1085-00 for Technical Assistance in Conventional Energy Activities in Bangladesh. It has been prepared based on the Letter of Agreement dated September 13, 1982 between the governments of the United States and Bangladesh and approved for implementation by the Joint Secretary, ERD on February 3, 1983. The Work Scope and Schedule are based on Annex I, Project Description, which is a part of the Letter of Agreement and is in accord with the priority areas identified in the Arthur D. Little, Inc., Report, "Technical Assistance Program in Support of Conventional Energy Resource Development in Bangladesh". This Work Plan is intended to respond to the needs expressed by the National Planning Commission, the Bangladesh Ministry of Energy, and Petrobangla.

2.0 GOALS AND OBJECTIVES

2.1 The overall broad objectives of the Work Plan activities are:

- 2.1.0 To contribute to reducing petroleum imports and the consequential drain on foreign exchange.
- 2.1.1 To enable Bangladesh to mobilize its human and capital resources, as well as private capital and technology for the exploration, exploitation and utilization of its natural gas resources and continue its search for petroleum.

2.2 In order to further these broad objectives, a program for technical assistance has been developed. The topics covered include:

- 2.2.0 Development of sufficient data to allow dependable estimates of recoverable reserves for each gas field.
- 2.2.1 Preparation of a plan for improving the dependability of the natural gas production and supply system.
- 2.2.2 Improvement of Petrobangla's drilling operations by providing classroom seminars and practical field training in critical drilling operations.

2.3 Specific objectives of the Work Plan which will assist Bangladesh in obtaining the goals of the assistance program are:

2.3.0 To enhance the capability of Bangladesh nationals by means of specific training in reservoir evaluation, exploration and development as well as in production and utilization of hydrocarbon resources.

2.3.1 To identify technology transfer needs and to provide guidance for effective transfer.

2.3.2 To identify problems and bottlenecks which could retard the rate of development of the natural gas resource, to recommend programs to overcome these bottlenecks and when practical, to implement selected programs.

2.4 The benefits to be expected from this program are medium to long term and include:

2.4.0 An improved balance of payments as a result of increased utilization of indigenous fuels and reduced hydrocarbon imports.

2.4.1 An enhanced domestic competence in the management and planning of energy resource development.

2.4.2 More effective utilization of assistance from international lending agencies in the financing of petroleum development projects.

2.4.3 Formulation of government policies which will lead to an increased involvement of the private sector in the exploration or production of indigenous energy resources.

2.4.4 Identification, from the counterpart roster and of those receiving local training, of personnel who could be sponsored to specialized training programs conducted in the U.S.A.

3.0 SCOPE

- 3.1 The scope of the country level activities for Bangladesh is comprised of work items identified in Annex I of the Agreement. These work items are in the nature of technical assistance and do not include capital assistance nor the purchase of capital equipment. Specifically, the work items are:

PROJECT 1

- 3.1.0 Provide assistance in the establishment of a central data bank for all geophysical, geological, drilling, testing and production data from all fields.
- 3.1.1 Provide geological and geophysical assistance to the Exploration Division of Petrobangla to develop a program for digital seismic testing of all fields and for analysis and interpretation of this seismic data.
- 3.1.2 Provide assistance in the establishment of an in-country stratigraphic interpretation capability.
- 3.1.3 Assist in the development of a continuing program of production testing for all gas wells.
- 3.1.4 Provide a team of production engineers to review the operations of existing gas fields, separation facilities and transmission pipelines in order to assess their reliability, to recommend improvements and to assist Petrobangla in implementation of the recommended improvements.
- 3.1.5 Conduct seminars in Bangladesh to provide practical training in critical field operations including well planning, materials procurement, cementing, casing, drilling fluids, well completions and testing.
- 3.1.6 Provide additional technical services as required which complement and facilitate these programs.

4.0 APPROACH

This Work Plan will be accomplished in such a way as to retain flexibility to make changes as the need arises. Such changes will be undertaken only with the concurrence of the Steering Committee.

4.1 The detailed approach to the execution of the Work Plan is as follows:

- 4.1.1 As the first work item, the prospective Resident Manager visits Dhaka to:
- Present the Work Plan to the U.S. AID Mission and to the Government of Bangladesh.
 - Obtain concurrence on the Work Plan.
 - Arrange and organize the physical support facilities and equipment necessary for the project.
 - Assist in identifying the prospective counterparts for the various work items, especially the counterpart Resident Project Manager.
- 4.1.2 Provide the services of a Resident Manager in Dhaka throughout the scheduled work program to direct the work and arrange for needed support from the Bechtel organization. Utilize the information contained in the Arthur D. Little Report to support the work efforts as appropriate.
- 4.1.3 Schedule periodic reviews with the Steering Committee to evaluate the work status and to adjust the work items if required.
- 4.1.4 Inform the U.S. AID Mission in Dhaka of all personnel movements into and out of Bangladesh.
- 4.1.5 Attend regular meetings, as requested by U.S. AID Mission or the Steering Committee, to stay abreast of other donor activities and to avoid redundancy in the efforts.
- 4.1.6 Involve the counterparts in the activities and in the planning.

- 4.1.7 Advise AID/Washington through the U.S. AID Mission of changes contemplated that could effect the duration of the work or the estimated costs. Undertake such changes only with concurrence of AID and the Steering Committee.
- 4.1.8 Notify U.S. AID Mission of activities which may be included which relate to the design of Mission-funded projects.
- 4.1.9 Maintain records of the benefits which derive from these work items. These will form the basis for an overall evaluation of the program toward the end of the next year.
- 4.1.10 Prior to starting work on each project, the Resident Manager will hold meetings with the Steering Committee staff to confirm the program bases and discuss implementation of the project work. This first meeting will provide the opportunity to reconfirm the work scope, to understand in greater detail Bechtel's work approach, to agree on alternatives, and to plan future activities.

5.0 DESCRIPTION OF SPECIFIC TASKS

Bechtel specialists will participate with their Bangladesh counterparts in the performance of the following major tasks:

PROJECT I

5.1 Data Collection

- 5.1.0 Provide assistance to set up a data bank to include all geological, geophysical plus petroleum engineering, and production data. Categories of data would include seismic surveys, geologic maps and well logs, along with all drilling, testing, and production data from all fields. A permanent data collection group staffed by Petrobangla personnel will be recommended.
- 5.1.1 From the data collected a preliminary assessment of each gas field will be made to determine if additional seismic work is warranted. The necessary reservoir information required for a testing and evaluation program of existing wells will be gathered. Equipment necessary to microfilming and photo-copy reproduction of records will be recommended.

5.2 Exploration

- 5.2.0 Provide geologic and geophysical assistance to the Exploration Division of Petrobangla in the development of a program for digital seismic testing of all existing fields and in the analysis and interpretation of seismic data.
- 5.2.1 Evaluate the long term needs for processing and evaluation of digital seismic data and a program to provide training for Petrobangla geophysicists in operation of seismic modelling systems and an analysis of results will be proposed. Costs for these data processing and evaluation services by specialized firms will be established.
- 5.2.2 Provide a senior geophysicist with stratigraphic interpretation experience to assist Petrobangla in the analysis and interpretation of seismic data. This geophysicist will provide on-the-job training to Petrobangla's Geophysics Division.
- 5.2.3 Evaluate the status and condition of all gas wells and with the cooperation of Petrobangla's Exploration Directorate, develop an on-going program for production testing of all gas wells and for workovers and repairs to improve products and extend reservoir life. Assistance will be given to Petrobangla in obtaining the services of a U.S. production testing firm to undertake down-hole pressure surveying and other test programs and provide classroom and on-the-job training.

5.3 Production

- 5.3.0 Survey all production facilities and recommend improvements in maintenance and operation of wells and separation facilities.
- 5.3.1 Survey all gas transmission systems. Evaluate the need for better corrosion protection, maintenance programs and pressure control systems and develop priority lists for repair work.
- 5.3.2 Where appropriate, develop conceptual designs for the modification of facilities to improve their performance and reliability.
- 5.3.3 Develop a long term maintenance program involving such things as periodic well workovers, corrosion protection, inspection, pipeline cleaning and calibration of controls.

- 5.3.4 Evaluate the potential for increasing production from existing wells and recommend programs.
- 5.3.5 Assist Petrobangla in the implementation of recommended improvements as requested.

5.4 Training

- 5.4.0. Drilling operations and production testing appear to be areas in which technical assistance and training are most immediately needed by Petrobangla. Seminars on petroleum engineering in Dhaka and on-the-rig training at the Dresser Ideco rig's first well-site are tentatively planned. The timing and location of seminars and other classwork will depend upon the availability of Petrobangla's Drilling Division staff.
- 5.4.1 Conduct a pre-drilling evaluation of the Dresser Ideco rig to determine if rig specifications, equipment, and material are adequate for conducting drilling and completion programs. This evaluation will be conducted in cooperation with Petrobangla personnel.
- 5.4.2 Conduct an evaluation of the drilling program for the first well to be drilled with the Dresser Ideco rig to assess the need for planning assistance. Review with Petrobangla personnel the technical competence of the crews assigned to the Dresser Ideco rig.
- 5.4.3 Provide training classes for drilling personnel in such topics as drilling fluids, casing and cementing, well completions and production testing.
- 5.4.4 Provide a seminar on petroleum engineering for Drilling Division technical staff covering the following topics:
- Design of drilling programs
 - Materials and logistics planning
 - Introduction to drilling fluids technology
 - Mud testing and monitoring
 - Well casing installation
 - Introduction to well cementing
 - Well completion techniques

- Introduction to reservoir rock and fluid properties
 - Well testing and sampling techniques
 - Well workovers.
- 5.4.5 A reservoir geology seminar to teach geologists practical reservoir evaluations and calculations of reserves will be held. The course includes log analysis, a discussion of reservoir rock properties, and reservoir definition.
- 5.4.6 A future appraisal program will be set up as a work program for Petrobangla geologists to continue reserve evaluations on all fields. Preceding work will serve as an example and a basis for continuing field evaluation and development.
- 5.4.7 A voluntary training seminar at no cost to the USAID program is scheduled to cover subjects such as:
- Implications of Over-Pressures in Exploration, Drilling and Production
 - Discussion of clastic sediments, shaley sands and clay typing.
 - Discussion of cased hole log evaluation.
 - Open technical discussion.

6.0 PERSONNEL AND ORGANIZATIONS

- 6.1 The project will be staffed by employees of Bechtel National, Inc., and its subcontractor, Dresser Petroleum Engineering Services. Bechtel will direct the overall program and provide specialists in surface production facilities and pipelining whereas Dresser will provide geologists, geophysicists, petroleum engineers and drilling engineers.
- 6.2 The organization illustrated in Figure 1, shows the interaction between the Bechtel team members and their Bangladesh counterparts. The overall lead role of the Bangladesh Government Steering Committee is also highlighted. The organization is described in the following paragraph and the resumes of key personnel are attached.

- 6.3 The Resident Manager, Mr. Frank Powlan, will have full responsibility for the management of the program in Bangladesh including supervision of personnel, direction of the work effort, coordination with the Steering Committee and the U.S. AID Mission in Dhaka, and cost and schedule control. He will report to the appropriate designated officials at commencement of the in-country activities.
- 6.4 Mr. Powlan's home office support will be the following:
- Mr. J.F. Houle, who supervises the overall Technical Assistance in Conventional Energy program covered by the Bechtel contract with the Agency for International Development in Washington, and who is responsible for the overall performance of the Bechtel management and technical support staff in Bangladesh. He will ensure that all appropriate resources are made available, that the work is accomplished in accordance with the Work Plan, and that all contractual obligations are met.
- 6.5 The Senior Geophysicist will assist as needed in analysis of data, and will provide assistance and direction for stratigraphic interpretation of seismic data.
- 6.6 The Production Engineer will direct all activities for production facilities. He will call upon pipeline engineers, corrosion and cathodic protection engineers, and gas processing specialists in assessing current production operations. He will also interface with CIDA for the recovery of LPG's through gas treating and possibly the feasibility of gas recycling.
- 6.7 The Drilling Engineer will organize, prepare, and direct, as needed, seminars and on-the-rig training classes.

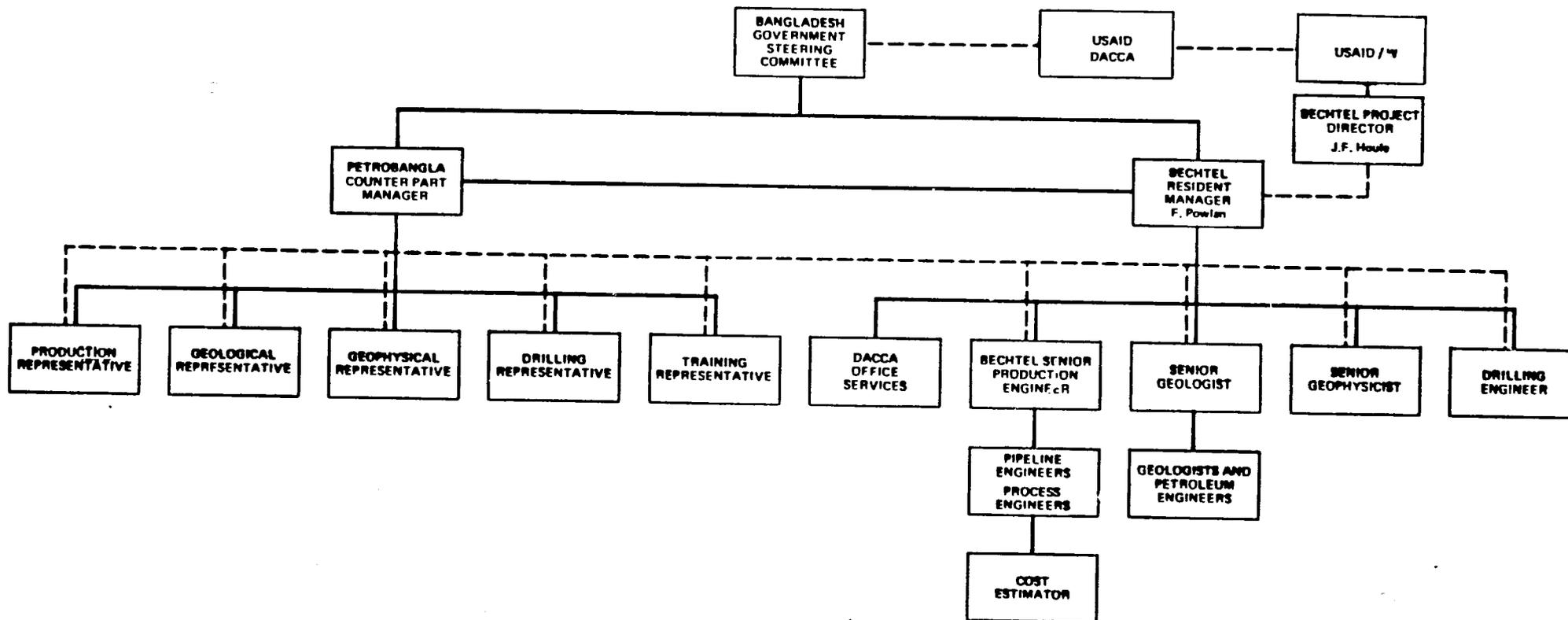


Figure 1 ORGANIZATION CHART

7.0 PROJECT SUPPORT

7.1 The work will be performed primarily in Bangladesh. When certain activities require the facilities and expertise available in the United States home offices, the concurrence of the Steering Committee will be obtained, and, if appropriate, counterpart presence in the contractor's home office will be arranged. These activities could be classified as those requiring large computer application for simulation and data evaluations.

7.2 The following physical support facilities and equipment needs are required in Bangladesh:

7.2.0 Housing

Arrangements have been made to lease permanent housing by Bechtel for the Resident Manager and his family. The operation of an apartment-sized unit will be evaluated for the use of one or more long-duration staff, who will not be in residence status in terms of savings of hotel accommodations.

7.2.1 Field Offices

Arrangements have been made by Bechtel to lease a small field office in Dhaka adjacent to the Resident Manager's house and the apartment unit or incorporated with these facilities. This arrangement will enable communication with the United States during non-working hours.

The offices are of sufficient size to accommodate three senior specialists and their counterparts. We expect that the geophysicist and the drilling engineer will work in Petrobangla offices a large portion of the time.

7.2.2 Furnishings and Office Equipment

A windfall opportunity arose with the closing of Parker Drillings office and quarters in Dhaka. Household and office furnishings have been purchased at discounted prices. Additional items will be imported to Dhaka for the house, the apartment and the office. Air conditioners, an IBM typewriter and a photocopier were obtained in the equipment purchase from Parker Drilling. Additional furnishings and equipment will be required and necessary permits for duty-free import or local purchase without tax will be required for some of this equipment while others will be purchased locally.

7.2.3 Transportation Needs

A maximum of four automobiles with drivers will be required. The cars and drivers will be leased, on an as-needed basis, from a reputable Bangladesh organization which will handle fuel, maintenance and insurance needs. Off-road vehicles will be necessary from time to time to visit well sites, pipelines and drilling rigs. These are to be provided by Petrobangla. Counterpart personnel staff will accompany Bechtel personnel on all field trips.

7.3 As discussed above, Petrobangla will provide a number of services during the course of the work including:

- 7.3.0 Office space for the Senior Geophysicist and other Senior Specialists.
- 7.3.1 Office space and training areas for the Drilling Engineer to conduct seminars for petroleum engineers in Dhaka and to run a school for drillers at the Dresser Ideco rig.
- 7.3.2 Off-the-road vehicles and drivers for trips to field locations.
- 7.3.3 Organize and assemble trainees for seminars.
- 7.3.4 Provide a large permanent area for use as a data center complete with air conditioning, suitable files, drawing cabinets, shelving, tables, etc.
- 7.3.5 Provide geologists, geophysicists, production engineers, drilling engineers and other staff to work with the Bechtel team.
- 7.3.6 Two classrooms for concurrent seminars, with blackboards, 35mm projectors, overhead projectors, screens, etc. One preparation room.
- 7.3.7 Students should be supplied with hand calculators (scientific), graph paper (linear, semi-log, and log-log), and writing supplies, straight-edges, etc.
- 7.3.8 Interpreter if needed. (Working knowledge of English is recommended for all students). Provide assistance and liaison for seminars.
- 7.3.9 Limit on class size. Preferred limit is no more than twenty students in order to provide intensive instruction.

8.0 REPORTS AND LIAISON

8.1 Reports

Quarterly progress reports will be issued by the Resident Manager to the Steering Committee, U.S. AID Washington, and the U.S. AID Mission in Dhaka. These reports will cover the following:

- 8.1.0 Summary of progress during past three months.
- 8.1.1 Conclusions reached, recommendations for immediate action.
- 8.1.2 Work program for next three months.
- 8.1.3 Suggested modifications to the program to accommodate unforeseen conditions, client needs, etc.
- 8.1.4 At critical points in the progress of each project, a report will be prepared summarizing results, conclusions, and recommendations.

8.2 Liaison

Coordination of the Work Plan for each project will require liaison at several levels between a number of entities:

- 8.2.0 Bechtel Resident Manager - Steering Committee or designated representative.
- 8.2.1 Monthly review meetings and sessions or more often if needed.
- 8.2.2 Bechtel Resident Manager - AID Mission/Dhaka: Monthly reviews of administrative matters and job progress.
- 8.2.3 Bechtel Resident Manager and Team: Weekly meeting in Dhaka.
- 8.2.4 Bechtel Project Director - AID Washington: Regular discussions concerning job needs and quarterly reviews.

9.0 SCHEDULE

9.1 This Work Plan covers the period January, 1983 through January, 1984. During this initial phase, work programs and schedules will be prepared for a continuing effort. The schedule shown in Figure 2 illustrates the tasks under each of the projects. These indicate the approximate direction of each task. The initiation of any specific task will depend upon Petrobangla's scheduled availability of personnel, facilities and equipment for training seminars, etc.

10.0 BUDGET

10.1 The budget has been prepared based upon a fixed manpower effort in Bangladesh and in the United States. The salaries of the Bangladesh counterpart personnel have not been included. The total Takas cost to the Bangladesh government is believed to be less than 25 percent of the dollar cost to the U.S. government at the current rate of exchange.

ACTIVITY SCHEDULE

	1	2	3	4	5	6	7	8	9	10	11	12
Resident Manager F. Y. Powlan	----- 12 Mos. -----											
Senior Geologist O. R. Holt Tasks	xx 5.1.0,	xxxx 5.2.0,	xxxxx 5.2.1	x oo					xxxx 5.2.0,	xxoo 5.4.5	oo	oo
Senior Geophysicist B. W. Aud Tasks			xxxxx 5.1.0,	xxxx 5.2.0,	xxoo 5.2.1			xx 5.2.2	xxxx	oooo		
Senior Petroleum Engineer B. Bennett Tasks				xxxx 5.1.1,	xxxx 5.4.3,	xxxxx 5.4.4	oooo					
Senior Operations Engineer T. D. Newton Tasks					xx 5.1.1, 5.4.5,	xxxxx 5.2.3, 5.4.6	xxxx 5.3.0,	xxxxx 5.3.3,	oo 5.3.4,	5.3.5,	oo	
Senior Drilling Engineer Ben Reynolds Tasks			xxxxx 5.4.1,	xxxx 5.4.2,	xxxx 5.4.3,	xxooo 5.4.4	o					
Production Engineer A. Morvan Tasks				xxxx 5.3.1,	xxxx 5.3.2	oooo	oooo					
V.P. DPES W. H. Fertl										x		
Marketing Manager, DPES G. J. Callison										x		

x = time in Bangladesh

o = time in U.S.A.: (planning, evaluation, report preparation)

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USAID BANGLADESH
IN-COUNTRY BUDGET ESTIMATE
Revision 1-14-83

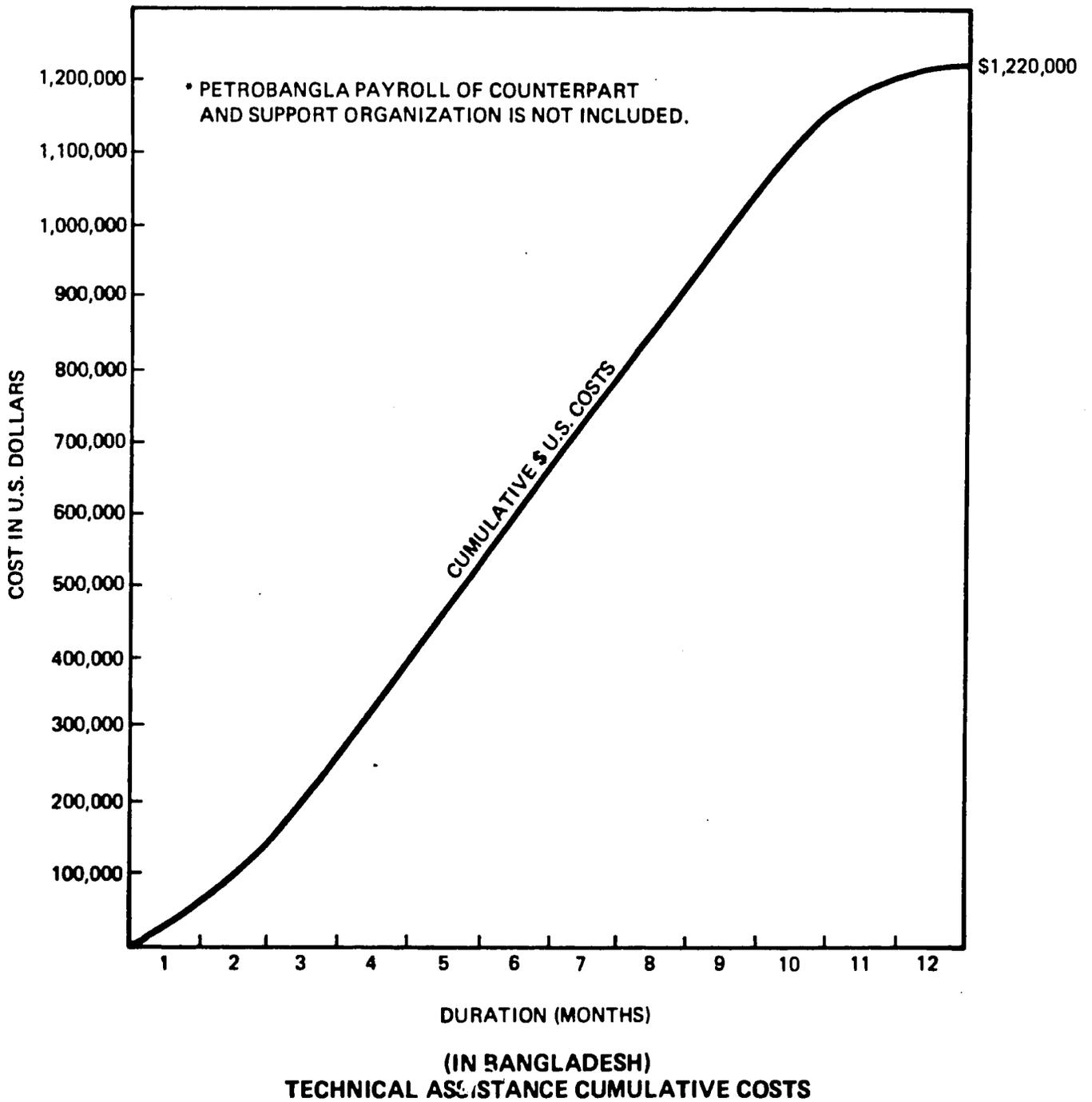
U.S. Dollars

Breakdown

1.0	Labor Related Costs	
1.1	Resident Manager	
1.10	Salary and Post Differential	89,000
1.11	Salary Additives (Benefits)	12,000
1.12	Field Overhead	24,000
1.2	Bechtel U.S. Based Personnel	
1.20	Direct Salaries	128,000
1.21	Salary Additives (Benefits)	34,000
1.22	Overhead	74,000
1.3	Subcontractor	
1.30	In Bangladesh	317,000
1.31	In USA	90,000
2.0	Other Direct Costs	
2.1	Bechtel Costs	
2.10	San Francisco Payroll Tax	1,400
2.11	Reproduction and Office Supplies	5,400
2.12	Telephone and Telex	3,200
2.13	Travel and Subsistence	
	- Air Fares	35,000
	- Subsistence	14,000
	- Settling-in Costs	8,000
	- Ground Transportation	29,000
2.14	Cost of Money	2,400
2.15	Education Allowance	10,550
2.16	Relocation Allowance	5,000
2.17	Passports, Processing and Medical Expense	1,500
2.18	Housing and Office	
	- Rental (1 house, 1 apt., and small office)	22,000
	- Major appliances & Furnishings	30,000
	- Air Shipment of Personal Effects	9,000
	- Utility Cost	6,000
	- Furniture Storage in USA	6,000
2.19	DBA Insurance	2,700

Continued

	U.S. Dollars
<u>Breakdown</u>	
2.20 Other In-Country Costs	
- Local Employees	7,100
- Office Equipment and Supplies	3,000
- Maintenance, Installation of Appliances and Miscellaneous	7,800
- Telex and Telephone Costs	21,000
2.2 Subcontractor Costs	
2.21 Travel and Subsistence	
- Air Fares	26,000
- Subsistence	38,000
- Instruction Materials	2,000
3.0 Subtotals - Labor and Labor Related Costs	
3.1 Bechtel (1.1 & 1.2)	361,000
3.2 Subcontractors (1.3 & 1.4)	<u>407,000</u>
3.3 Subtotal	768,000
4.0 Subtotals - Other Direct Costs	
4.1 Bechtel Expenses (2.1)	230,050
4.2 Subcontractor Expenses (2.2)	<u>66,000</u>
4.3 Subtotal	296,050
5.0 General and Administrative Expenses	
5.1 Bechtel (12.86%)	46,000
6.0 Fee (10%)	<u>110,000</u>
7.0 Total Estimated Costs	1,220,000



R E S U M E S

JAMES F. HOULE

EDUCATION: B.S., Chemical Engineering, 1955
Purdue University

SUMMARY: 25 years experience in resource development and planning projects worldwide. Experience in energy planning, agricultural development, desalination, and industrial process development.

EXPERIENCE:

1978-Present: Directs international regional planning, energy planning and resource development projects and manages a department of economic planners, resource specialists and industrial engineers. Mr. Houle monitors and analyzes trends in developing nations, supervises master plan studies, economic feasibility studies and preliminary designs. During 1980 and 1981, he directed a comprehensive national energy planning activity for the Government of Indonesia involving 25 year energy demand forecasting, analysis of resources, development of energy supply strategies and evaluation of socio-economic and financial impacts of these strategies. An Indonesian energy planning team of 12 engineers and economists is being trained under this program. He managed a team of industrial planners and manufacturing engineers who developed implementation plans for a large heavy industrial equipment complex in the High Plains of northern Algeria. In addition to the industrial facilities, estimated to employ 14,000 workers, the planned complex will include a new city for 125,000, a 4,000-student vocational training center and all supporting facilities. Technology transfer is a major activity under this program.

1973-1977: Mr. Houle directed two major water resource and agricultural development projects through their preliminary design and economic feasibility levels. The first project involved four dams, water conveyance pipelines and canals, and 50,000 hectares of sprinkler-irrigated land in the High Plains of Algeria. The second project, under AID sponsorship in Senegal, involved development of surface and ground water resources for the irrigation of 10,000 hectares in the Sahelian region where flood recession agricultural has been the only means of survival. In addition to directing the engineering aspects of these projects, Mr. Houle supervised surveys of the social and economic impact of irrigated agriculture upon farm families and upon the community as a whole.

1970-1973: Mr. Houle directed process development activities in such fields as: coal gasification, thermal desalination, electrodialysis, solid waste conversion and reclamation, and advanced inorganic chemical processes.

1956-1970: Mr. Houle was Chief Project Engineer at Commonwealth Oil Refining Co. from 1967-1970, Senior Project Engineer at Chemical Construction Corp. from 1965-1967, a Project Manager for Struthers Scientific

JAMES F. HOULE (Continued)

and International Corp. from 1962 to 1965, and an Oil Operations Engineer for the Arabian American Oil Company from 1956 to 1962.

PROFESSIONAL DATA:

Mr. Houle is the author of a number of technical articles and is a Registered Professional Engineer in California.

Language: Arabic - Al Hasa dialect; French - fair.

22

FRANK Y. POWLAN

Project Manager

B.S., Civil Engineering, University of British Columbia

Registered Professional Engineer-Quebec, Canada

Twenty-Eight Years Total Experience in project management, engineering management, design engineering and construction supervision.

Fields of Experience include design engineering, construction management, engineering management and project management for oil, gas, and products pipelines and production facilities including pump stations, tank farms, loading and terminal facilities, NGL/gas separation, injection and treating, water injection, offshore facilities and platforms, generating stations and distribution networks.

Present Assignment: Project Manager in the Houston Office.

Bechtel Work History: Joined Bechtel in 1961. Major responsibilities have included:

- Project Engineer for oilfield work in Sumatra for Caltex. Was responsible for field development of production facilities including pump stations, compressor stations, pipelines, generators, substations, highlines, well sites, roads and related facilities. Was also responsible for cleanup operation to meet environmental standards.
- Engineering Manager with Mobil Oil Indonesia on the Arun Gas and Condensate production and injection facilities. Worked on all phases of gas/oil/production projects.
- Project Engineer for the Interprovincial Pipeline Project from Sarnia to Montreal and for a Conoco waterflood project in the Arabian Gulf and a 100-man living complex on a platform in the same area.
- Area Technical Representative, then Project Design Supervisor, for Sonatrach oil pipeline expansion project.
- Superintendent for construction of pump stations, tank farms and marine terminal expansion in Tunisia and Algeria.
- Engineer in Australia for a products pipeline and Project Engineer for a products pipeline in Korea.

FRANK Y. POWLAN

Project Manager

- Project Manager for design of oil and gas production facilities and gas compression facilities for gas lift on various platforms located in the Arabian Gulf for Dubai Petroleum.
- Project Manager on Aramco's Qatif/Manifa Expansion Project.

Previous Work History: Manager of an oilfield and pipeline construction firm in Canada. Water Production Engineer for the City of Calgary, Alberta, Canada and was engaged in engineering-management functions for another Canadian engineering firm.

BILLY W. AUD

EDUCATION B.S. Chemical Engineering, Purdue University, 1949

PROFESSIONAL
EXPERIENCE

1975 - Present: Dresser Industries, Inc., Manager of Special Engineering Projects and Technical Advisor - Geophysics. Developed material on formation pressures and fracture gradients. Also involved in geothermal energy exploration activity and its potential.

1969 - 1975: Dresser Olympic Operations, Supervisor of Seismic Data Processing and Manager of Product Development.

1966 - 1969: Petty Geophysical Company, Supervisor of Seismic Data Processing.

1964 - 1966: Petty Geophysical Company, Manager of Seismic Data Processing.

1957 - 1964: Robert H. Ray Company, Supervisor of Seismic Operations and Interpretation.

1953 - 1957: Western Geophysical Company, Seismologist.

TECHNICAL PUBLICATIONS

Authored papers relating to the "Origin of Pressure" and "Techniques for Predicting Relative Lithology and Abnormal Pressure Zones from Seismic Data". Papers were published in SPWLA, SEG, SPE, and API journals.

PROFESSIONAL SOCIETIES

Society of Exploration Geophysicists.

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BILLY E. BENNETT

EDUCATION: B.S. Petroleum Engineering, University of Tulsa, 1951.
 M.S. Chemistry, University of Missouri at Rolla, 1971.

PROFESSIONAL
EXPERIENCE

1981 - Present: Dresser Industries, Manager of Technical Training.
Responsible for training engineers and management personnel in the areas
of acidizing, fracturing, drilling fluids, and the associated chemistry.

1979 - 1981: Colorado Northwestern Community College, Director of
Petroleum Technology. Developed and successfully executed programs
leading to an Associate in Applied Science Degree in Petroleum Technology.

1974 - 1979: Lincoln Trail College of Illinois Eastern College, Chairman
of Chemistry Department. Instructed all chemistry courses, scheduled
courses to integrate with vocational programs.

1967 - 1974: Altamont Community High School, Chairman of Chemistry
Department. Taught chemistry and physics courses.

1952 - 1967: Exxon Company U.S.A., Duties: beginning field operations as
production roustabout in maintenance of all types production equipment.
Worked on workover rigs. Roughneck on drilling rig and then to company
representative in drilling department. Maintenance Supervisor over
roustabout crews. Production forman. Production engineer with responsi-
bilities in water flood design installation and operation. Design and
installation of lease automatic custody transfer (L.A.C.T.) units Drilling
Engineer with location preparation, move in rig, casing design, cement
program and completion design.

1951 - 1952: Champlin Refining Company, Engineer. Responsible for drill
site location, completion and production maintenance of gas wells.

PROFESSIONAL SOCIETIES

Society of Petroleum Engineers of AIME.

OLIN R. HOLT

EDUCATION: B.S. Geology, Indiana University, 1953
 M.A. Geology, Indiana University, 1957

PROFESSIONAL
EXPERIENCE

1981 - Present: Dresser Petroleum Engineering Services, Chief Log Analyst, Interpretation and Field Development. Responsible for Diplog interpretation literature and other related material. Developed interpretational procedures and assisted in development of new Diplog programs.

1976 - 1981: Dresser Atlas, Manager of Log Analysis Center. Responsible for the operation of the Houston Log Analysis Center. Specific responsibilities for getting the Epilog and Diplog data processed in a timely manner, assuring that the quality of the results was of the highest order possible. Other areas of responsibility included the processing of field tapes into tapes for the customers, merging tapes with all services on the same processed tape, and composite tapes which included all logging runs on a well merged into a single tape. Established and maintained a Dresser Atlas database for log processing, correction and normalization.

1969 - 1976: Dresser Atlas, Chief Log Analyst, Log Analysis Section. Responsible for correlating, computing, plotting and interpreting Diplog data. Assisted in setting up Diplog programs and in selecting computer systems to perform the correlation, computations and plotting.

1968 - 1969: Dresser Atlas, Production Service Engineer. Assisted in the design and production of a Production Services Unit. This unit was self-contained with a hydraulic mast and drum transmission designed to operate slowly and without pulling off instruments downhole.

1967 - 1968: Dresser Atlas, Region Log Analyst, California Region. Interpret wells and explain problems to personnel in the THUMS project in Long Beach Harbor.

1965 - 1967: P.G.A.C., Sales Engineer. Worked in Houston Sales Office. Made field log interpretations and assisted customers in choosing points for sidewall cores and formation tests. Performed log quality checks for logs run in the United States.

1962 - 1965: Sinclair Oil Corporation, Geologist. Performed wellsite geology -- running samples, picking formation tops from samples and drilling time, picking zones for drill stem testing, and making field decisions. Also made field log analysis computations to assist in decisions.

1960 - 1962: Birdwell Division of Seismograph Service Corporation, Log Analyst. Performed log analysis on suites of logs. Assisted in conducting log analysis training schools. Performed log quality control on all Birdwell-run logs.

1959 - 1960: Birdwell Division of Seismograph Service Corporation. Logging Engineer. Ran both open and cased hole logs in Illinois Basin. Performed perforating and plug and packer setting operations. Interpreted logs at wellsite.

1954 - 1959: Petroleum Section of Indiana Geological Survey, Geologist. Made field maps of wells drilled in Indiana. Correlated logs and assembled all well information for files.

TECHNICAL PUBLICATIONS

- Holt, O. R. and Hammack, G. W.: "Diplog Technical Bulletin", Dresser Atlas publication (1971).
- Holt, O.R.: "Some Problems in the Stratigraphic Analysis of Diplogs", Trans. GCAGS (1973), 68-73.
- Holt, O. R. and Schoonover, L. G.: "Computer Methods of Diplog Correlation", Soc. Pet. Eng. J. (1973), 31-38.
- Holt, O. R.: "Structural Geologic Considerations in Diplog Interpretation", The Log Analyst (1973), 3-9.
- Holt, O. R.: "Log Quality Control", Trans. SPWLA (1975), 16, 5.
- Holt, O. R., Schoonover, L. G. and Wichmann, P.A.: "True Vertical Depth, True Vertical Thickness and True Stratigraphic Thickness Logs", Trans. SPWLA (1977), 19.

PROFESSIONAL SOCIETIES

Houston Geological Society
American Association of Petroleum Geologists
Society of Petroleum Engineers of AIME
Society of Professional Well Log Analysts

TROY D. NEWTON

EDUCATION B.S. Mechanical Engineering, Texas Tech University, 1964

PROFESSIONAL
EXPERIENCE

1980 - Present: Dresser Industries, Training Manager. Developed program material, course schedules and conducted courses in acidizing, fracturing, basic well log interpretation, reservoir behavior and transient well testing. Supervised activities of training department as it grew from one person to seven and took on additional functions such as equipment operator and driver training, first aid, CPR and well cementing procedures.

1979 - 1980: Rike Service, Inc., Consulting Petroleum Engineer. Conducted Petroleum Engineering seminars in well stimulation and well completions and workovers.

1976 - 1979: Mobil Oil Corporation, Associate Operations Engineer, Exploration and Producing. Prepared well completion and/or stimulation prognosis for new wells. Work included planning well tests, review of pressure transient analysis data, and stimulation treatment design.

1975 - 1976: Arabian American Oil Company, Petroleum Engineer III, Water Injection Unit. Planned and prepared programs for and supervised field testing of new water supply wells to obtain productivity index and water quality data. Also supervised pre- and post- acid job testing on wells which had heavy hydrocarbon zones.

1972 - 1975: Mobil Oil Corporation, Senior Production Engineer, Exploration and Producing Division. Duties included analyzing production, income and equipment failure report data. Also made recommendations for artificial lift equipment changes after analyzing dynamometer cards taken from sucker rod pump systems. Prepared well workover programs for acidizing, hydraulic fracturing, and recompletions.

1967 - 1972: Mobil Oil Corporation, Senior Production Engineer, Exploration and Producing Division. Made recommendations for initiation of corrosion and scale mitigation programs. Prepared programs for remedial well work such as plugbacks, recompletions, acidizing, hydraulic fracturing, conversions, and plugging to abandon.

1966 - 1967: Diamond Shamrock Oil & Gas Corporation, Junior Production Engineer, Exploration and Producing Division. Maintained well records, production records, supervised repair and maintenance operations on oil and gas leases.

PROFESSIONAL SOCIETIES

Society of Petroleum Engineers of AIIME

R. W. YATES

Project Engineer

B. S., Mechanical Engineering, University of Illinois

Twenty-Two Years Total Experience in design, engineering and project management for petroleum, petrochemical, and pipeline facilities.

Fields of Experience include management of engineering design projects concerning pipelines, marine loading facilities, terminals, oil and gas treating plants, water treating and water injection plants.

Present Assignment: Project Engineer on the Aramco Manifa field development project.

Bechtel Work History: Joined Bechtel in 1965. Major responsibilities have included:

- Senior Engineer in Pipeline and Production Services Division responsible for the design of offshore tanker loading facilities at Cook Inlet, Alaska, and the field processing plant for Occidental Petroleum's oil concession in Libya. The latter design activity was followed by supervision of construction and plant startup.
- Served in Belgium with responsibility for the design of the pump stations for a hot oil pipeline project for Chevron.
- Project Engineer for overall final design of the world's largest seawater treating facility and pipeline for Aramco, Saudi Arabia.
- Project Engineer responsible for conceptual and preliminary design of water source and seawater treating facilities for ARCO at their Prudhoe Bay Alaska production facilities.
- Chief Mechanical Engineer for Field Development, Pipeline and Production Facilities Division, San Francisco.
- Supervisory Project Engineer for pressure maintenance for Pemex - IMP enhanced recovery seawater treatment and offshore recovery program.
- Project Engineer for a feasibility study for San Joaquin Valley industry to assess potential routes for the transport of increased heavy crude oil production from the San Joaquin Valley to California refineries.

Previous Work History: Mechanical Engineer with Shell Oil Company in Montana and Louisiana. Was involved in various phases of exploration and production engineering and drilling operations.

October 30, 1983

Mr. M.A. Matin Lasker
Deputy Secretary
External Resources Division
Ministry of Finance & Planning
Sher-e-Bangla Nagar
Dhaka

AID Letter No. 1342

Subject: Technical Assistance in Conventional Energy
under Project No. 936-5724

Dear Mr. Lasker:

Our letter of February 1, 1983 proposed a program of Technical Assistance to Petrobangla by Bechtel. Upon your acceptance on February 3, 1983, this program was initiated. At this time, following seven months of in-country work by the Bechtel team, Petrobangla has now proposed certain changes in the focus of work. We have designated the work effort to date as Phase I. And in the revised work plan (Attachment A), work to be undertaken through 31 March 1984 is designated as Phase II work and work undertaken from April 1, 1984 to September 30, 1984 is designated as Phase III work. As noted there are several preconditions to be met prior to USAID financing of work under these two phases.

After discussions during the week of October 2, 1983 in Dhaka among Bechtel, Petrobangla and USAID, USAID's contractor, Bechtel, agreed to modifications to the assistance described in this Attachment A. Petrobangla has reviewed the earlier draft of the revised work plan (Attachment B) and submitted their findings (Attachment C). The changes in focus of this project as noted in Attachment A may be summarized as follows:

1. Concentration of efforts until March 31, 1984 (Phase II) on the establishment of a functioning Data Center for operation and use by Petrobangla on the various projects currently being undertaken or under consideration by other donors.
2. The provision of certain essential equipment for the Data Center such as:
 - o Duplicating equipment
 - o A computerized data cataloging and retrieval system
 - o Air-conditioning equipment
 - o Audio-visual equipment
3. In order to fully utilize this Center and to manage its day-to-day operation, the Government of Bangladesh is requested to provide the necessary Data Center facilities and fixtures as noted in Section 5.0 of Attachment A, and to arrange for the expeditious transfer to the Data Center of all original geologic, geophysical and petroleum engineering data now held by the various operating gas companies and by the Petrobangla Exploration Directorate as per Section 2.0 of Attachment A.

The Government of Bangladesh is also requested to provide management and staff for the Data Center and to nominate counterparts to work with the Bechtel specialists during their stay in Dhaka as per Section 5.0 of Attachment A.

A Petrobangla letter of 19 October 1983, Reference No. 40.01.86 from Mr. M. Badruddoja of Petrobangla to Mr. Nooruddin M. Kamal, Joint Secretary (Dev.), Petroleum and Mineral Resources Division of the Bangladesh Ministry of Energy (Attachment C) agrees essentially to a preliminary version of the attached work plan (Attachment B). The major change in the later plan is to more clearly delineate the actions necessary to effect Phase III. We have also taken Petrobangla's October 19 letter concerns into consideration in the interest of expediting resumption of activities. We hope this approach is agreeable.

Our February 1, 1983 letter was not explicit regarding the privileged person status of contractor personnel, nor about tax exemption for project-related goods and equipment. In order to improve the efficiency of the Bechtel specialists and facilitate the prompt clearance of project goods and equipment, USAID requests your agreement that Bechtel and its employees are to be treated as a U.S. Government-funded contractor and employees of such a contractor under the applicable terms of the Economic, Technical and Related Assistance Agreement between our Governments signed on May 21, 1974, the salient points of which are repeated here for convenience.

The Bangladesh Government shall exempt the contractor, Bechtel and its employees from, or itself bear the cost of, the payment of taxes, tariffs, customs duties, fees or other impositions levied under the laws and regulations in effect in the territory of Bangladesh, or of any political subdivision or agency thereof in respect of:

- (i) any payments or compensation paid to the contractor or its employees made in connection with carrying out the Technical Assistance except for payments to employees who are nationals of Bangladesh;
- (ii) any equipment, materials and supplies which have been brought into the territory of Bangladesh for the purpose of carrying out the out. the project (No. 936-5724) conducted hereunder and which will remain in Bangladesh;
- (iii) any equipment, materials, provisions, and supplies which have been brought into the territory of Bangladesh for the purpose of carrying out the Technical Assistance and which will be consumed therein or subsequently withdrawn therefrom; and
- (iv) any personal and household effects of the contractor's personnel and their families which, having been brought into the territory of Bangladesh, will be consumed therein or subsequently withdrawn therefrom.

REVISED WORKPLAN

TECHNICAL ASSISTANCE IN CONVENTIONAL ENERGY
BECHTEL NATIONAL, INC., CONTRACTOR

FUNDS PROVIDED BY
U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT

WITH SPECIAL REFERENCE TO
PHASE 2
ESTABLISHMENT OF A GEOLOGICAL DATA CENTER

PREPARED BY
OFFICE OF ENERGY (S&T/EY) AND USAID/DHAKA
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D.C. 20523
October 22, 1983

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1.0 BACKGROUND

On 3 February 1983 an agreement became effective between the Governments of Bangladesh and the United States of America covering specific technical assistance to Petrobangla in their natural gas operations in three topical areas as follows:

1. Development of sufficient data to allow dependable estimates of recoverable reserves for each gas field.
2. Preparation of a plan for improving dependability of the natural gas production and supply system.
3. Improvement of Petrobangla's drilling operations by providing classroom seminars and practical field training in critical drilling operations.

Included in the prospective work activities was the establishment of a central data bank for all drilling, testing, and production for all fields.

Responsibility to provide appropriate technical assistance was assigned to Bechtel National, Inc. under an AID centrally-funded contract which also covers somewhat similar technical assistance to the Sudan, Morocco, Costa Rica, and the Dominican Republic. The budget assigned was approximately U.S. \$1.2 million. Bechtel activities in Bangladesh began on 25 March 1983 with the arrival of their Resident Manager.

On 7 August 1983, Petrobangla, the counterpart organization to Bechtel, in a letter to the Ministry of Energy and Natural Resources indicated a need for a review of the Bechtel activities especially with respect to priorities given to the different components of the assistance and to a recognition of a need to provide certain equipment items for the central data bank component.

During the week of 2 October 1983, through a series of meetings among representatives of USAID/Dhaka, AID/Washington, Bechtel National, Inc., the Dhaka World Bank Office and Petrobangla, priorities and equipment needs were reviewed. As a result, details for recasting the technical assistance efforts emerged. The recasting details are based primarily on two observations that the Chairman of Petrobangla made during the meetings as follows:

1. None of the gas fields in the country will be ready for a definitive estimation of proven reserves until the results of the Petroleum Exploration Promotion Project (Second World Bank Hydrocarbon Loan) are known. This project is expected to be implemented during the period January 1984 to December 1985. Furthermore, this project had not yet been identified at the time the basis for the current Bechtel activities was established (in March 1982). In effect a portion of the original Bechtel workplan became outdated and needed to be reflected in future Bechtel work.
2. The establishment of a central geological data bank now becomes the highest priority activity. This data bank will provide input data to the Petroleum Exploration Promotion Project (PEPP), receive the data generated by the project activities and represent a closely related synergistic activity to PEPP.

Accordingly, the Bechtel activities are to be recast to place primary emphasis on the establishment of the central data bank; training efforts are to be reduced to only those relevant to the content and use of the data bank, and specific efforts directed toward gas reserve estimations are terminated. This revised workplan provides the details for further activities that reflect the change in priorities discussed above.

2.0 OBJECTIVES AND SCOPE

All ongoing and further Bechtel activities shall conform to the following objectives:

- To establish a viable, useful, operable, geological data center to serve the nation's exploration and production activities for oil and gas hydrocarbons.
- To assist in operating the data center in a manner that specifically supports the activities which will be underway under the World Bank Petroleum Exploration Promotion Project by the time authorized Bechtel activities have been completed.

Prior Bechtel activities (those accomplished to November 1, 1983 at the date of the new AID/BDG letter agreement as to the revised scope of this project under the 3 February 1983 agreement) shall be designated as Phase 1 activities. Further Bechtel activities required to achieve the above objectives shall be organized as two additional phases each having its own limited objective as follows:

Phase 2. Make best efforts to collect available relevant data, classify and catalogue them, establish a filing system for sorting and retrieval and to train staff integral to such an effort. This phase is to be completed by March 31, 1984.

Phase 3. To integrate the operation of the Data Center with the activities being undertaken under the World Bank Petroleum Exploration Promotion Project, to expand the capability of the Data Center by acquiring new data (such as will be generated by the Petroleum Exploration Promotion Project), and to debug center operations (if this is found necessary). This phase will commence only upon successful completion of Phase 2 and AID/BDG agreement to proceed with Phase 3. In addition, prior to Phase 3 commencement, the World Bank must confirm in writing to AID that at a minimum its Petroleum Exploration Promotion Project staff will both assist in and make use of the data center. Phase 3 will be completed by September 30, 1984.

The scope of further Bechtel activities in both Phases 2 and 3 shall be primarily technical assistance in nature. Whenever a need for equipment is detected, as is already noted below, the justification shall be established, specifications for performance produced, and recommendations for purchase made.

3.0 APPROACH

The Bechtel activities and results so far accomplished shall be classified as a Phase 1 effort considered to have been completed as of the date of any new letter agreement based on this revised workplan. These activities and the results obtained shall be described in a Phase 1 final report. The activities in Phase 2 will also terminate in a written report to be submitted for approval. The report shall contain recommendations and their justification for proceeding into a subsequent phase, including nature of staffing, budgets, and work programs.

All activities during Phase 2 shall be carried out in collaboration with counterparts provided by Petrobangla in such fashion that appropriate Petrobangla staff is aware of the details of the Bechtel activities, is given full comprehension of their rationale, participates in their implementation, and upon completion of Phase 2 possesses a momentum to carry on the operations of the Data Center. Upon approval of the Phase 2 report recommendations, Bechtel activities for Phase 3 may begin.

The details for Bechtel activities in Phase 3 will depend on the activities undertaken under the Petroleum Exploration Promotion Project, and at this time, the details available are stated in the World Bank document P-3615-BD only in an indicative manner. Further information will become available as consultants for the Petroleum Exploration Project begin work. Details will be developed for Phase 3 activities, consistent with available funds, at the appropriate time in advance of the completion of the Phase 2 activities. However, without evidence of support of Phase 3 activities by the World Bank Petroleum Exploration Promotion Project this phase may be terminated. It is already recognized that specific equipment needs exist for Phase 2 involving the first stage installation of an electronic data processing system and a basic copying machine.

4.0 TASKS

The following specific tasks are to be undertaken as part of the Phase 2 Bechtel activities. As details are developed for Phase 3, they will be defined in an amendment to this workplan.

Task 1 - Identification and Sorting of Geologic Data

Available data for the various identified gas fields and for such additional areas as appear to be promising sites for the accumulation of hydrocarbons will be reviewed, classified, and placed in the data center. A senior expatriate geologist, Mr. Olin Holt of Dresser Petroleum Services Corporation, will supervise this task utilizing the services of Petrobangla counterparts.

Task 2 - Development of a System for the Cataloguing of Data and their Retrieval

A geologic librarian (Ms. Gail Sorrough of Bechtel National, Inc.) will work in close association with the specialist described for the task above to develop and implement a system for the cataloguing of data and their retrieval. The system will anticipate the future use of the Data Center in accordance with the objectives stated above. The Data Center will be correspondingly organized to enable the retrieval and use of exploration and production related documents. Data will be separated into different categories - geologic and geophysical.

Geologic data will include but not be restricted to the following types of items:

- Structural maps
- Isopach maps of various formations - especially the productive zones

- Geologic maps of known fields and structures
- General Geologic reports of Bangladesh
- Specific Geologic reports of fields and other areas of interest
- Well log suites of all wells drilled in Bangladesh
- Computer processed well log interpretations

The following types of engineering data will be included in the geologic data:

- Core reports
- Reserve estimates
- Well test information
- Production data
- Well Completion reports

The geophysical data will include but not be restricted to the following types:

- Magnetometer information
- Gravity information
- Seismic information
 - Seismic sections
 - Seismic maps
 - Seismic reports

The basic organizational structure of the data bank is expected to adapt to the following:

The Jamuna River will be the dividing line between districts considered to be in East and West Bangladesh. For each district the data will be filed under the headings Geological and Geophysical and separated into

onshore and offshore. Districts, areas, fields, and wells will be identified accordingly. Additional information not amenable to this structure will be filed under their individual headings.

Emphasis will be placed on obtaining all information from the following producing or known gas fields:

Chhatak	Bakhrabad
Sylhet	Semutang
Kailastila	Kutubdia
Rashidpur	Begumgonj
Habiganj	Kamta
Titas	Beanibazar
Feni	

The candidate for this task is Cail Sorrough of Bechtel National, Inc.

Task 3 - Utilization of a Computer Program for Data Search and Retrieval

A computer program will be developed that provides a speedy means to search for data and to provide a print-out listing of the available data on any desired subject. Key word search methods will be employed.

Task 4 - Training a Computer Programmer

It is expected that, for two selected candidates, appropriate training suited to geological data center operations in computer programming will be offered as an internship in the United States or elsewhere under separate AID funding to be arranged through the USAID Office of Energy in AID/Washington. This will be arranged by ST/EY of USAID Washington and will be accomplished within the Phase 2 period.

Task 5 - Provision of Equipment

A Xerox Model 7000 reproduction machine will be specified and purchased to enable production of copies of data for use by the Center and by outside groups. The copies will be specified to suit local conditions of electricity reliability, equipment protection, and service availability.

A desk-top business computer (IBM PC or similar) with screen, printer, and hard storage capabilities will be provided along with the necessary software to enable initial operation of the Data Center. The computer will be specified to suit local conditions of electricity reliability, equipment protection, and service availability.

During Phase 2, other equipment may be identified. If so, these may be recommended for acquisition during any subsequent phase of the program if it appears funds might be available from the original 1.2 million. Advantage will be taken of the availability of other reproducing equipment in Dhaka for use over the short term where practical.

Task 6 - Data Center Management and Organization Plan

The Bechtel Resident Manager, working in close association with the counterpart Director of the Data Center, will develop an organization plan. This plan will include functional descriptions, qualifications for each position to be filled, and reporting relationship. The organization plan will also define working relationships with Bechtel counterparts and expatriate personnel from other donor programs.

The plan for management will define relationships between the Data Center and the various divisions of Petrobangla and of the various operating gas companies concerned with geological, geophysical, and petroleum engineering functions. It will also identify procedures for updating the Data Center inventory.

5.0 PETROBANGLA RESPONSIBILITIES

Petrobangla will provide guidance, assistance, and permanent specialists to staff, operate, and maintain the Geologic Data Center as these needs are identified below. Petrobangla will provide and support the following services during the Phase 2 activities, as well as others that may be jointly identified and agreed to.

1. A written undertaking that the services of a senior official of Petrobangla as the Geologic Data Center Director and technically competent counterparts for each Bechtel specialist will be provided on a timely basis by Petrobangla. Counterparts will also serve as a liaison between Bechtel and other government agencies, and related institutions whose cooperation is required. The senior manager will have authority to act on behalf of Petrobangla in all matters pertaining to the Data Center and will report directly to the Chairman of Petrobangla.
2. A written undertaking that a full time and permanent assignment to the Data Center of a senior geologist familiar with data management will be done on a timely basis by Petrobangla. This geologist would supervise the technical activities of the Data Center and direct training programs to be offered by the Center.
3. A written undertaking that a full time services of a staff of data clerks, and reproduction equipment operators will be available on a timely basis. (Minimum numbers to be reached by mutual agreement by January 31, 1984.)
4. Provision of a permanent Data Center site with adequate space and adequate electric services for lighting, air-conditioners and reproduction equipment, and with the furnishings and equipment necessary to store, retrieve, and use all data properly. (This work is under way and was begun during Phase 1 efforts. Adequate space is estimated to be a minimum of 4,500 square feet.)
5. A written undertaking by Petrobangla arranging for the timely transfer of all original data of the types listed in the Phase 2 Task Descriptions to the Data Center. To meet the schedule below, timely transfer is defined as receipt of all data at the Center within 30 days of the date of the agreement based on this Workplan. This data is now kept at the offices of the various gas production, transmission and distribution companies, and in some cases is already held by Petrobangla's Exploration Directorate. The Center is to replace original data with copies if required by the holders.
6. Provision of space in the Data Center for use by Bechtel/Dresser specialists to review data, and to provide on-the-job training. (This work is under way and was begun during the Phase 1 efforts.)

7. The counterparts for each of the Bechtel/Dresser specialists assigned to this project are to be continuously available during the specialists time in Bangladesh. Namely counterparts for the:
 - Geologic Librarian
 - Geologist
8. Petrobangla will select and make available two candidates with computer programming experience for expected overseas training in the U.S. at an early date that avoids delay in the completion of the Phase 2 work.
9. Petrobangla will be responsible for customs clearance, payments of any duties, transport, and installation costs at the Data Center for equipment provided by USAID for the Data Center.
10. The Government of Bangladesh will first agree in writing to provide for an adequate functioning data center, which has full access to review, to hold and copy all geologic and other data from all hydrocarbon exploration, production and related efforts in Bangladesh no matter what the source, no matter what organizational change might occur in Petrobangla or elsewhere.

6.0 SCHEDULE

All Bechtel Phase 2 work activities shall be completed by 31 March 1984. The basis for this date with all Phase 2 activities is that the items specified above as Petrobangla and/or Government of Bangladesh responsibilities will be provided in a timely fashion that avoids unacceptable delay upon adequate notice given by Bechtel.

7.0 REPORTS

Specific Reports shall be submitted as follows:

Phase 1 Final Report. This report shall describe the project activities that occurred before the date of the letter agreement of 3 February 1983 and which began with the Bechtel participation in the Arthur D. Little reconnaissance efforts of January-March, 1982. It shall also include the accomplishments of the work period from 3 February 1983 through the date of this document. It shall contain a description of the status of the Geological Data Center as of October 10, 1983 with respect to the physical layout and substantive geological content in a manner that permits its use as the basic input to the Phase 2 effort. This report is due in final draft to Chairman, Petrobangla, ST/EY of AID/Washington (Mr. Charles Bliss) and to USAID, Mr. Graham Thompson, no later than 10 November 1983.

Phase 2 Final Report. This report shall describe the project activities that occurred during the Phase 2 period. It will include the management and organization plan for the Data Center and a description of the data cataloguing and retrieval system. It will also recommend details for the Bechtel activities to be undertaken in Phase 3 and will be available to the same parties listed under Phase 2 by April 15, 1984. AID/BDG acceptance of this report is required prior to commencement of Phase 3 activities.

REVISED WORKPLAN
TECHNICAL ASSISTANCE IN CONVENTIONAL ENERGY
BECHTEL NATIONAL, INC.

PHASE 2
ESTABLISHMENT OF A GEOLOGICAL DATA CENTER .

PREPARED BY
OFFICE OF ENERGY (S&T/EY)
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D.C. 20523
October 10, 1983

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During the week of 2 October 1983, through a series of meetings among representative of USAID/Dhaka, AID/Washington, Bechtel National, Inc., the Dhaka World Bank Office and Petrobangla, priorities and equipment needs were reviewed. As a result, details for recasting the technical assistance efforts emerged. The recasting details are based on two observations that Petrobangla made during the meetings as follows:

1. None of the gas fields in the country will be ready for a realistic estimation of proven reserves until the results of the Petroleum Exploration Promotion Project (Second World Bank Hydrocarbon Loan) are known. This project is expected to be implemented during the period January 1984 to December 1985. Furthermore, this project had not yet been identified at the time the basis for the current Bechtel activities was established (in March 1982).
2. The establishment of a central geological data bank now becomes the highest priority activity. The data bank will provide input data to the Petroleum Exploration Promotion Project, receive the data generated by the project activities and represent a closely related synergistic activity.

Accordingly, the Bechtel activities are to be recast to place primary emphasis on the establishment of the central data bank; training efforts are to be relevant to the content of the data bank, and specific efforts directed toward gas reserve estimations avoided. This revised workplan provides the details for further activities that reflect the change in priorities discussed above.

2.0 OBJECTIVES AND SCOPE

All ongoing and further Bechtel activities shall conform to the following objectives:

- To establish a viable, useful, operable, geological data center to serve the nation's exploration and production activities for oil and gas hydrocarbons.
- To assist in operating the Data Center in a manner that specifically supports the activities which will be underway under the Petroleum Exploration Promotion Project by the time authorized Bechtel activities have been completed.

Prior Bechtel activities, so far accomplished under the 3 February 1983 agreement, shall be designated as Phase 1 activities. Further Bechtel activities required to achieve the above objectives shall be organized as two additional phases each having its own limited objective as follows:

Phase 2. To collect all available relevant data, classify and catalogue them, and establish a filing system for storing and retrieval.

Phase 3. To integrate the operation of the Data Center with the activities being undertaken under World Bank auspices for the Petroleum Exploration Promotion Project, to expand the capability of the Data Center by acquiring new data (such as will be generated by the Petroleum Exploration Promotion Project), and to debug center operations (if this is found necessary).

The scope of further Bechtel activities in both phases 2 and 3 shall be primarily technical assistance in nature. Whenever a need for equipment is detected, as is already noted below, the justification shall be established, specifications for performance produced, and recommendations for purchase made.

3.0 APPROACH.

The Bechtel activities and results 'so far' accomplished shall be classified as a Phase 1 effort considered to have been completed as of the date of any new letter agreement based on this revised workplan. These activities and the results obtained shall be described in a Phase 1 final report. The activities in Phase 2 will also terminate in a written report to be submitted for approval. The report shall contain recommendations and their justification for proceeding into a subsequent phase, including nature of staffing, budgets, and work programs.

All activities during Phase 2 shall be carried out in collaboration with counterparts provided by Petrobangla in such fashion that Petrobangla is aware of the details of the Bechtel activities, is given full comprehension of their rationale, participates in their implementation, and upon completion of Phase 2 possesses a momentum to carry on the operations of the Data Center. Upon approval of the Phase 2 report recommendations, Bechtel activities for Phase 3 may begin.

The details for Bechtel activities in Phase 3 will depend on the activities undertaken under the Petroleum Exploration Promotion Project, and at this time, the details available are stated in the World Bank document P-3615-BD only in an indicative manner. Further information will become available as consultants for the Petroleum Exploration Promotion Project are appointed shortly. Details will be developed for Phase 3 activities, consistent with available funds, at the appropriate time in advance of the completion of the Phase 2 activities.

It is already recognized that specific equipment needs exist for Phase 2 involving the first stage installation of an electronic data processing system, a basic copying machine, and access to a specialized copying machine already installed in a Government of Bangladesh office.

4.0 TASKS

The following specific tasks are to be undertaken as part of the Phase 2 Bechtel activities. As details are developed for Phase 3, they will be defined in an amendment to this workplan.

Task 1 - Identification and Sorting of Geologic Data

Available data for the various identified gas fields and for such additional areas as appear to be promising sites for the accumulation of hydrocarbons will be reviewed, classified, and placed in the data center. A senior expatriate geologist, Mr. Olin Holt of Dresser Petroleum Services Corporation, will supervise this task utilizing the services of Petrobangla counterparts.

Task 2 - Geophysical Interpretation of Stratigraphic Data

A senior expatriate geophysicist, Mr. Jerry Carmichael of Dresser Petroleum Services Corporation, will conduct by means of a series of workshops, the interpretation of seismic data from areas which are thought to include stratigraphic traps. These seismic data have been accumulated through various multi-national donor and Petrobangla sponsored exploration programs. These data must be interpreted and correlated so that it may become a useful part of the Data Bank.

Task 3 - Development of a System for the Cataloguing of Data and their Retrieval

A geologic librarian (Ms. Gail Sorrough of Bechtel National, Inc.) will work in close association with the specialists described for the first two tasks above to develop and implement a system for the cataloguing of data and their retrieval. The system will anticipate the future use of the Data Center in accordance with the objectives stated above. The Data Center will be correspondingly organized to enable the retrieval and use of exploration and production related documents. Data will be separated into different categories - geologic and geophysical.

Geologic data will include but not be restricted to the following types of items:

- Structural maps
- Isopach maps of various formations - especially the productive zones
- Geologic maps of known fields and structures
- General Geologic reports of Bangladesh
- Specific Geologic reports of fields and other areas of interest
- Well log suites of all wells drilled in Bangladesh
- Computer processed well log interpretations

The following types of engineering data will be included in the geologic data:

- Core reports
- Reserve estimates
- Well test information
- Production data
- Well Completion reports

The geophysical data will include but not be restricted to the following types:---

- Magnetometer information
- Gravity information
- Seismic information
 - Seismic sections
 - Seismic maps
 - Seismic reports

The basic organizational structure of the data bank is expected to adapt to the following:

The Jamuna River will be the dividing line between districts considered to be in East and West Bangladesh. For each district the data will be filed under the headings Geological and Geophysical and separated into onshore and offshore. Districts, areas, fields, and wells will be identified accordingly. Additional information not amenable to this structure will be filed under their individual headings.

Emphasis will be placed on obtaining all information from the following producing or known gas fields:

Chhatak	Bakhrabad
Sylhet	Semutang
Kailastila	Kutubdia
Rashidpur	Begumgonj
Habiganj	Kamta
Titas	Beanibazar
Feni	Patharia

The candidate for this task is Ms. Gail Sorrough of Bechtel National, Inc.

Task 4 - Utilization of a Computer Program for Data Search and Retrieval

A computer program will be developed that provides a speedy means to search for data and to provide a print-out listing of the available data on any desired subject. Key word search methods will be employed.

Task 5 - Training a Computer Programmer

For two selected candidates, appropriate training suited to geological data center operations in computer programming will be offered as an internship in the United States under separate funding.

Task 6 - Provision of Equipment

A Xerox Model 7000 reproduction machine will be specified and purchased to enable production of copies of data for use by the Center and by outside groups. The copies will be specified to suit local conditions of electricity reliability, equipment protection, and service availability.

A desk-top business computer (IBM PC or similar) with screen, printer, and hard storage capabilities will be provided along with the necessary software to enable initial operation of the Data Center. The computer will be specified to suit local conditions of electricity reliability, equipment protection, and service availability.

During Phase 1, other equipment needs may be identified. If so, these will be recommended for acquisition during subsequent phases of the program. Advantage will be taken of availability of other reproducing equipment in Dhaka for short term use where practical.

Task 7 - Data Center Management and Organization Plan

The Bechtel Resident Manager, working in close association with the counterpart Director of the Data Center, will develop an organization plan. This plan will include functional descriptions, qualifications for each position to be filled, and reporting relationship. The organization plan will also define working relationships with Bechtel counterparts and expatriate personnel from other donor programs.

The plan for management will define relationships between the Data Center and the various divisions of Petrobangla and of the various operating gas companies concerned with geological, geophysical, and petroleum engineering functions. It will also identify procedures for updating the Data Center inventory.

5.0 PETROBANGLA RESPONSIBILITIES

Petrobangla will provide guidance, assistance, and permanent specialists to staff, operate, and maintain the Geologic Data Center as these needs are identified below. Petrobangla will provide and support the following services during the Phase 2 activities, as well as others that may be jointly identified and agreed to.

1. The services of a senior manager as the Geologic Data Center Director and counterparts for each Bechtel specialist. Counterparts will also serve as a liaison between Bechtel and other government agencies, and related institutions whose cooperation is required. The senior manager will have authority to act on behalf of Petrobangla in all matters pertaining to the Data Center.
2. Full time and permanent assignment to the Data Center of a senior geologist familiar with data management. This geologist would supervise the technical activities of the Data Center and direct training programs to be offered by the Center.
3. Full time services of a staff of data clerks, and reproduction equipment operators.
4. Provision of a permanent Data Center site wired for air-conditioners and reproduction equipment, and with the necessary furnishings and equipment. (This work is under way and was begun during the Phase 1 efforts.)
5. Arrangements for the timely transfer of all original data of the types listed in the Phase 2 Task Descriptions to the Data Center. To meet the schedule below, timely transfer is defined as receipt of all data at the Center within 30 days of the date of the agreement based on this workplan. This data is now kept at the offices of the various gas production, transmission and distribution companies, and in some cases is already held by Petrobangla's Exploration Directorate. The Center is to replace original data with copies as required by the holders.
6. Provision of space in the Data Center for use by Bechtel/Dresser specialists to review data, and to provide on-the-job training. (This work is under way and was begun during the Phase 1 efforts.)

7. The counterparts for each of the Bechtel/Dresser specialists assigned to this project are to be continuously available during their stay in Dhaka, namely for the:
 - Geologic Librarian
 - Geologist
 - Geophysicist
8. Select two candidates with computer programming experience for expected overseas training in the U.S. at an early date that avoids delay in the completion of the Phase 2 work.
9. Petrobangla will be responsible for customs clearance, payments of any duties, transport, and installation at the Data Center for equipment provided by USAID for the Data Center.

6.0 SCHEDULE

All Bechtel Phase 2 work activities shall be completed by 31 March 1984. The basis for this completion date is that the support specified above as Petrobangla responsibilities will be provided in a timely fashion that avoids unacceptable delay upon adequate notice given by Bechtel.

7.0 REPORTS

Specific Reports shall be submitted as follows:

Phase 1 Final Report. This report shall describe the project activities that occurred before the date of the letter agreement of 3 February 1983 and which began with the Bechtel participation in the Arthur D. Little reconnaissance efforts of January-March, 1982. It shall also include the accomplishments of the work period from 3 February 1983 through the date of this document. It shall contain a description of the present status of the Geological Data Center with respect to the physical layout and substantive geological content in a manner that permits its use as the basic input to the Phase 2 effort.

Phase 2 Final Report. This report shall describe the project activities that occurred during the Phase 2 period. It will include the management and organization plan for the Data Center and a description of the data cataloguing and retrieval system. It will also recommend details for the Bechtel activities to be undertaken in Phase 3.



PETROBANGLA

পেট্রোবাংলা

Ref.No.40.01.86

Date : 19 October 1983.

Mr. Nooruddin M. Kamal,
Joint Secretary (Dev.) and
Chairman, Steering Committee, USAID Project
Petroleum & Mineral Resources Division,
Ministry of Energy,
Bangladesh Secretariate,
Dhaka.

Ref. : Technical Assistance in the Development
of Conventional Energy under USAID.

Sub. : Comments of Petrobangla on the Draft Revised
Work Plan prepared by Office of Energy
(S&T/EY), AID Washington.

Dear Sir,

With reference to your letter No. P&MR(VI)60/USAID/32--
Project/4713 dated 10.10.83, this is to attach herewith a copy of
the Draft Revised Work Plan as prepared by AID Washington, received
~~informally~~ through Mr. F. Y. Powlan, Resident Manager, Bechtel
National Inc. along with Comments of Petrobangla on the Draft
Revised Work Plan. The USAID may kindly be advised to amend the Draft
Revised Work Plan accordingly.

Thank you.

Yours faithfully,

(Signature)
(M. Ladrudjoja)
Chief Manager

&

Chief Coordinator, USAID Project.

C.C.

✓ 1. Mr. Graham Thomson,
USAID, Dhaka.

2. sr. C.C. to Chairman, Petrobangla.

The Revised Work Plan for Technical Assistance in Conventional Energy under USAID, as drafted bears the following salient features.

1. Background References : The draft revised Work Plan refers to the following background events :
 1. 3 February 1983 letter agreement between GOB & USA.
 2. Responsibility was assigned to Bechtel and Petrobangla became its counterpart.
 3. October 2, 1983 discussion with Chairman, Petrobangla. The Revised Plan will be termed phase 2 plan and shall place primary emphasis on the establishment of the Central Data Bank. Training efforts to be reduced to only those relevant to the content and use of the data bank.

Comments : None..

2. Objectives and Scope : The main objective is to establish a viable, useful, operable geological data centre and to assist in operating the data centre in a manner that specifically supports the activities which will be underway under the World Bank PEPP.

After Completion of Phase 2 work Plan, Phase 3 shall start so as to integrate the operation of the Data Centre with the activities to be undertaken under the World Bank PEPP.

The scope of work shall remain Technical Assistance in nature, however, whenever any need for equipment will be detected, justifications will be established, specifications for performance produced and recommendation for purchase made.

Comments : This part is agreeable to Petrobangla.

3. Approach : The Bechtel activities and results so far accomplished as of date.

Activities of phase 2 shall be carried out in collaboration with counterparts provided by Petrobangla and establish the Data Centre.

Activities of Phase 3 shall depend on the activities undertaken under the PEPP.

Comments : This part is also agreeable, except the last phrase of the last sentence i.e. "and access to a specialized copying machine already installed in a Government of Bangladesh Office" which should be deleted

4. Tasks : Task : 1 - Identification & sorting of Geological Data.

Comments : This is O.K.
2 - Geophysical Interpretation of Stratigraphic Data.

Comments : This may be kept in provision for Phase 3 Work Plan by which time Petrobangla's Seismic Data processing Centre will be functioning in full swing and which shall facilitate velocity evaluations and replay for the purpose of Stratigraphic interpretation.

3 - Development of a System for the Cataloguing of Data and their Retrieval.

Comments : This is O.K.

4 - Utilization of a Computer Programme for Data Search and Retrieval.

Comments : This is agreeable.

5 - Training a Computer Programmer.

Comments : This is also agreeable.

6 - Provision of Equipment.

Comments : Xerox model 7000 only has been kept in provision; But Data Centre will also require to have one Xerox model 2080. This may be thought for in the next phase (Phase - 3).

7 - Data Centre Management & Organizational Plan : This is said to be evolved in due course.

Comments : This is also agreeable.

5. Petrobangla responsibilities : Written undertaking from Petrobangla and GOB sought in the following :

- a) Services of a Senior Official of Petrobangla as the Geologic Data Centre Director & other technically competent counterparts to be provided.
- b) A full time and permanent to Data Centre of a Senior Geologist familiar with data management.

c) Full time services of staff of data clerks/operators.

d) Timely transfer of all original data.

Comments : Petrobangla has no objection to such commitments.

6. Schedule : Phase 2 work to be complete by 31 March 1984.

Comments : Efforts may be made to expedite completion as early as possible.

7. Report : Phase 1 report to be submitted immediately.
Phase 2 report to be submitted by 15 April 1984.

Comments : No objections from Petrobangla.


19.10.83

Appendix C

ACTIVITY REPORT

Appendix C

ACTIVITY REPORT

Period I - 1/15/82 to 4/23/82: Project Formulation Phase

Phase I of the project for technical assistance involved working with Arthur D. Little during the definitional stage of the country program.

A project preparation team from Arthur D. Little visited Dhaka in early 1982 to review the energy sector activities and develop a program for AID involvement. In March 1982, the Bechtel Project Director joined a representative of the AID Office of Energy (S&T/EY) and A. D. Little in Dhaka to consult with Petrobangla, the Ministry of Energy, and with the AID Mission staff. The specific project activities were defined and discussed in some detail with Petrobangla and with other lending institutions already active in the energy sector. A geologist from Core Laboratories Incorporated of Houston, Texas, a Bechtel subcontractor, assisted in the review of geologic data.

The overall work program was formulated by A. D. Little thereafter in Cambridge, Massachusetts and published in April 1982.

Period 2 - April 24, 1982 through March 25, 1983: Project Definition and Negotiation Phase

Upon departure from Dhaka in late March 1982, Bechtel and AID-Washington (S&T/EY) left a draft Project Description document with the AID Mission for their submission to the Government of Bangladesh along with a draft of a proposed Grant Agreement. Delays occurred as a result of a change of government in the spring of 1982. The draft copies of both documents were finally submitted in late June 1982. A response from the Ministry of Finance and Planning's External Resources Division was received by AID Mission on September 7, 1982, and a meeting held with the Ministry of Energy's Joint Secretary on September 9, 1982. General agreement was reached on the scope of activities.

During a visit to Dhaka in September 1982, Bechtel's Project Director was briefed on changes desired by Petrobangla in the scope of activities and was requested to quickly submit a Work Plan.

A draft Work Plan was submitted to AID Washington (S&T/EY) on October 18, 1982 and reviewed on November 19, 1982 in Washington. Extensive revisions were requested and a new draft was prepared and submitted on December 10, 1982. Additional revisions to the Work Plan were required as a result of an agreement reached by the Petrobangla with CIDA regarding a LPG extraction study.

Bechtel's Resident Manager visited Dhaka in early February 1983 at AID Washington's (S&T/EY) request to review the Work Plan with AID Mission and Petrobangla to obtain agreement on the LPG study work. While in Dhaka, certain logistical preparations were made. The LPG activity was deleted from Bechtel's work scope and assigned to CIDA. On February 4, 1983 the External Resources Division signed the Grant Agreement authorizing the start of in-country activities (Appendix A).

After the Letter of Agreement was signed, the availability of facilities for the project was investigated. Petrobangla could not provide seminar space, nor the equipment needed for the training and technology transfer aspects of the program. In order to meet the schedule in the Work Plan and to prepare for the arrival of Bechtel's subcontractor, it was necessary to locate independently a suitable seminar space and to procure equipment. Space was found in Gulshan at House 12, Road 33, which was suitable both as a seminar location and as a guest house. The cost of housing personnel in hotels would have been \$2,000 per month per man. Calculations for the cost of a guest house showed that a project guest house would save at least \$1200 per month per person, sufficient to allow for the purchase of equipment for seminars without the need for supplemental appropriations. AID Mission approved this approach, and it was decided to procure the equipment in Singapore and import the audio-visual equipment in the name of AID Mission through the U.S. Embassy. Upon returning to San Francisco on February 17, 1983, the

Resident Manager prepared a request to AID Washington for a waiver to procure the audio-visual equipment together with a waiver for the furniture and appliances to furnish the Resident Manager's house, and the combination of guest house, and seminar space.

Arrangements were made to lease the office space and buy the furniture of Parker Drilling, who had completed their work on the multi-well drilling project for Petrobangla. The office had an unfurnished house adjacent to it for the Resident Manager. Furniture, appliances, and air conditioners were ordered. A small office staff was hired.

Bechtel negotiated a subcontract at this time with Dresser Petroleum Engineering Services for geologic, geophysical, and reservoir engineering assistance.

Period 3 - March 26, 1983 to February 15, 1984: In-Country Activities Phase

A brief chronology of events during the third period follows:

- March 25, 1983: Resident Manager arrives in Dhaka
- April 1983: Informal meetings held with Steering Committee Chairman and AID
- March 1983: Mr. M. Afsaruddin named as Project Manager-Counterpart for Petrobangla
- April 8, 1983: Olin R. Holt, Geologist and Data Center Coordinator, and Ben D. Reynolds, Drilling Engineer, arrived in Dhaka. They are both employees of Bechtel's subcontractor Dresser
- April 1983: Drilling Engineer reviewed the condition of the New Ideco rig that recently arrived in the country. Working with his counterpart, Mr. Bhuia, Chief Manager-Drilling for Petrobangla, a driller-training course was developed
- April : The Data Center Coordinator surveyed the type of geologic and geophysical data and inspected various sites for a central data center. A site layout was developed and data inventories started.

Three technical people were assigned to the project:

- Mr. Mohammad Ali Jinnah - Geologist
- Mr. Abdul Haque - Geophysicist
- Mr. F. Karim - Assistant Geologist

These personnel catalogued the data which is presently available in the Geological Division, the Geophysical Division, and in the "Documentation Cell." The data is not in any real order but filed essentially by the name of the operating company.

May 1983: Evaluation of the New Ideco Rig

Our initial plan was to conduct training on the new Ideco rig rather than in a classroom setting in Dhaka. Therefore, Mr. Reynolds surveyed the rig in cooperation with the Ideco Agent and the Petrobangla Drilling Division. The rig, now in storage in Chittagong, will not be moved to the wellsite in Patharia until later in 1983. Certain items of equipment and tools were not ordered due to limitations imposed by the financing of the rig. These items had gone out for tender in February and were due to arrive in the fall. A drilling program for the Patharia well has been developed.

In view of these delays, drilling engineer training will be started in Dhaka.

As of May, the rig parts still were not on order, making it very unlikely that any drilling program would commence before 1984. Consequently, no further work on Tasks 5.4.1 and 5.4.2 was undertaken.

May 1983: LPG Study

A meeting was called by Mr. Matin Lasker, External Resources Development (ERD), asking that we review our scope of work to determine if we could handle the LPG study. Bechtel's Resident Manager advised Mr. Lasker that our budget for the current year did not allow for the study of LPG recovery.

May 1983: BPI

A meeting was called early in May in the Conference Room of the Ministry of Energy and Mineral Resources and was convened by the Secretary of Energy to discuss the role of the Bangladesh Petroleum Institute (BPI) which is funded by UNDP. Established in late 1980 with foreign funding from UNDP, BPI has run training seminars in drilling, geology, geophysics, and safety. Their course work will complement training activities planned under the AID project but to be delivered at a more basic level.

May 24, 1983: Steering Committee

The first formal meeting of the Steering Committee was held on May 24 and the subject of discussion was the Bechtel Work Plan. Bechtel's work-scope, budget, and schedule would not allow for the performance of any seismic drilling or other operations to obtain further information on the gas reservoirs of those fields which have already been discovered. However, without this information a realistic estimate of reserves is impossible. Bechtel proposed to prepare a plan for obtaining the necessary information. This was never accomplished and unless this plan is developed and funded by AID the work will have to be performed under other donor programs. The work tasks as approved and set forth in the Work Plan define the work Bechtel is to perform with our present budget. The schedule was extended to mid-1984, due to the late start and intentional rearrangement of the scheduling of the arrival of certain disciplines.

May 1983: Logistics

Delays were experienced in obtaining approvals for the purchase of furniture, air conditioners, and audio-visual equipment for training seminars. On May 12, 1983 a partial approval was received; however, the guest house, intended for use by team members as a economically attractive alternative to hotel accommodations, was not able to be used for most of this first quarter since approval to purchase air conditioners had not been received. Passbooks to purchase appliances and other imported items duty-free also took longer than expected.

Therefore, the expenses of our in-country team were increased due to extended stay in hotels, rather than decreased as originally planned.

June 1983: Data Center

Mr. M. Badruddoja was appointed as Chief Manager in charge of the data center. Mr. Badruddoja is a geologist and an experienced manager. He understands the necessity for establishing a Central Data Bank and is very knowledgeable about what has to be accomplished.

Mr. Olin Holt, Senior Geologist, prepared floor plans for several different arrangements of the Data Center, the library, the drafting department, and a seminar room at three different locations. Due to space limitations compromises were necessary for all the floor plans. Space for the Data Center was finally assigned to the sixth floor of the 107 Motijheel Commercial Area. Several floor plans for this space were drawn. The final choice, which was made on 29 June 1983, contains space for a library and a seminar room in addition to the Data Center in 2,445 square feet of floor area.

Equipment and files were moved from the fourth floor to the sixth floor of 107 Motijheel. The equipment was arranged according to the floor plan submitted to Mr. Afsaruddin on June 29, 1983. Letters were sent out by Mr. Badruddoja to the different departments within Petrobangla requesting that pertinent data be sent to the Data Center. The Data Center work progressed at a slow pace because it took nearly two months to get permission to collect the data from allocations other than that material stored in the Documentation Cell. At this time it is estimated that it will take a minimum of six to nine months to organize the available material into a usable Data Center Bank.

June 1983: Drilling Engineering Seminar

A course outline was reviewed with Petrobangla and course materials prepared for the seminar participants during May of 1983. Mr. Reynolds' counterpart, Mr. Auwaral Islam, assisted in these preparations.

The Drilling Engineering Course was held starting on May 30, 1983 with the following subjects:

1. Aspects of Rotary Drilling
2. Drilling Equipment
3. Basic Chemistry
4. Drilling Mud Functions and Testing
5. Composition of Water Based Muds
6. Geology
7. Rheology
8. Contamination
9. Stuck Pipe and Fishing Techniques
10. Lost Circulation
11. Inhibitive Muds
12. Oil Muds
13. Lubricity
14. Solids Control
15. Pressure Control
16. Drilling Bits
17. Hydraulics
18. Logging Tools and Logs
19. Pressure Prediction from Logs, from Seismic, and while Drilling
20. Casing Design
21. Cementing
22. Leak off Tests
23. Drill String
24. Corrosion
25. Directional Drilling
26. Workover/Completion Fluids
27. Completion Techniques - Packers
28. BOP Equipment
29. Drill Stem Testing
30. Elements of a Drilling Program
31. Elements of a Final Drilling Report

The course was completed July 7th. Three tests were given during the six weeks. All participants received passing grades. The class average grade was 92.8 percent. Attendees included:

D.H. Bashir Ahmed
Fazlul Karim
Akkas Ali
Jahangir Kabir Jr.
A.K.M.S. Rahman
Anwarul Islam
Naseer Ahmed

June 11, 1983: General Meeting with Petrobangla

The Bechtel Resident Manager and Bechtel's Data Center Coordinator met with Petrobangla's Chairman and his staff to review Data Center needs. It was decided by Petrobangla to:

- Accept the 6th Floor at 107 Mitijheel for the Data Center with space provided for a drafting center, library, and small seminar room
- Apply necessary pressure to get Data Files transferred to the Center
- Expedite air conditioners for the Center
- Request AID assistance in purchasing xerox equipment

July 5, 1983: Data Center Coordinator

Mr. Olin Holt completed his assigned tasks and departed Dhaka.

June 26, 1983: Geophysicist and Stratigraphic Specialist

Mr. B. Aud, geophysicist arrived to perform Tasks 5.2.2 and 5.4.5. His arrival had been scheduled for May 17 but was delayed by AID Washington while questions were answered concerning counterpart staff assignments and the Steering Committee organization.

July 16, 1983

Mr. Aud departs Dhaka without completing assigned tasks due to personal and family problems. A replacement geophysicist, J. H. Carmichael, was approved by AID but his overseas assignment was delayed by Petrobangla while discussions continued on the basic Work Plan and the Petrobangla equipment requirement.

July 22, 1983: Drilling Engineer

As a continuation to the drilling course, it was intended that the seven participants be taken to Chittagong to visit the Sitakund drill site and inspect the Ideco Rig located in the Petrobangla yard in Chittagong. The trip was never finalized because Petrobangla could not supply the transportation to Chittagong. It should be noted that field transportation is a requirement defined in the Work Plan to be supplied by Petrobangla.

The Drilling Engineering Course was a successful and its participants improved their marks significantly on the examinations. The anticipated 15 participants for the course did not materialize. The original class was begun with only five students. With much urging by Bechtel, four more trainees attended, with two students lasting only two days, and the other two staying the length of the course. We believe that better advantage could have been taken of the course by Petrobangla if they had been more resourceful in getting students to attend.

Mr. Reynolds departed Dhaka upon successful completion of his assigned task.

July 28, 1983: Steering Committee Meeting

The committee requested AID to fund equipment for the Data Center including a Xerox Machine, drawing reproduction, and an IBM PC computer.

A revised Work Plan incorporating changes recommended by Petrobangla and the Steering Committee was prepared.

August 22, 1983: Request for Equipment

By their 16 August 1983 letter by Petrobangla to the Joint Secretary, Ministry of Energy, they commented upon the Quarterly Progress Report (April to June 1983) and requested that the equipment for the Data Center be included in the revised Work Plan.

A letter from the AID Mission Director to the Additional Secretary of the Ministry of Energy dated August 22 (Appendix D) comments upon this request.

August 22, 1983: Steering Committee Meeting

A new draft of the AID/Bechtel Work Plan was prepared. Petrobangla on reviewing the Work Plan submitted by AID/Bechtel decided that the main objective of the AID program should be the Data Center. The priorities in the Petrobangla work schedule had changed. The World Bank Petroleum Exploration Promotion Project (PEPP) was being prepared. The World Bank program planned to use the Data Center as a repository for the information generated by this program. Another Steering Committee meeting was held on 22 August, 1983 to discuss the equipment which Petrobangla feels is necessary for the Data Center. At this meeting a letter from the AID Mission Director dated 22 August was presented. It outlined the position taken by AID Mission in regards to the equipment request and their position relating to the main objectives of the AID program.

September 7, 1983: AID Washington (S&T/EY) Review

Bechtel's Project Director and Resident Manager met in Washington with (S&T/EY) to review the program and agreed upon a revised Work Plan.

October 2-5, 1983: AID Washington Program Manager in Dhaka

The S&T/EY Program Manager reviewed Petrobangla's needs and project progress with AID Dhaka, Bechtel, and Petrobangla's Chairman. Further revisions were made to the Work Plan.

October 30, 1983: Revised Work Plan Presented

A letter from AID Mission Director to the Deputy Secretary, External Resources Division, Ministry of Finance and Planning, presented the revised Work Plan, which had been discussed with AID and with Petrobangla over the past four months. The Phase 2 program which covers the period November 1983 through March 1984 is attached as Appendix B.

The Phase 2 Work Plan eliminated all training, reservoir engineering, geophysical and geologic assistance and concentrated the remaining time and funds to the establishment of the Data Center. A Geologist-Data Center Coordinator (Mr. Olin Holt), and a Librarian (Ms. G. Sorrough) were proposed to provide in-country assistance, while necessary equipment would be purchased by AID. A December 1, 1983 deadline was established by AID for the Government of Bangladesh to approve the revised Work Plan.

November 14, 1983

The Steering Committee reviewed the Work Plan for Phase 2 and the October 30, 1983 letter and did not recommend any major changes. Formal approval was expected by all parties to be received within one week.

November 14, 1983: AID Washington Cable

A cable (#Dhaka 7979) from S&T/EY to USAID Mission Dhaka recommended termination of the Technical Assistance (Appendix E). Discussions within AID proceeded over the next several weeks. The Resident Manager for Bechtel prepared the draft final report, cost analysis, and equipment inventory in preparation for closure of the in-country office.

December 15, 1983: Draft Final Report Submitted to S&T/EY

Review and markup by AID Washington on January 19, 1984 and returned to Bechtel.

January 10, 1984: Bechtel Cost Analysis

Submitted to AID-Washington.

January 12, 1984: Termination Instructions

The Bechtel Resident Manager advised the AID Mission that formal instructions from AID Washington concerning termination had not been received. Bechtel proceeded with preparations for the project shutdown. Instructions from AID Mission regarding disposition of property await AID Washington notification.

January 31, 1984: Termination Notice

The Contracting Officer letter of partial termination and AID Mission letter of February 5, 1984 regarding property disposition were received, see Appendix F. The AID Contracting Officer was advised by Bechtel that all equipment would be turned over to AID Mission by February 17, 1984.

February 5, 1984: Letter to Bangladesh Government on Termination

Appendix G provides the letter notifying the External Resources Division, Ministry of Finance and Planning, of AID termination.

February 16, 1984: Shutdown of Project Activities

The Resident Manager turned over all equipment to AID Dhaka and departed.

Appendix D

LETTER FROM THE AID MISSION DIRECTOR TO
THE ADDITIONAL SECRETARY OF THE MINISTRY
OF ENERGY

DATED AUGUST 22, 1983

August 22, 1983

Mr. Shafiul Alam
Additional Secretary-in-charge
Petroleum and Mineral Resources
Division
Ministry of Energy & Mineral Resources
Room 113, 1st Floor
Bangladesh Secretariat
Dhaka

RECEIVED
AUG 25 1983
F. Y. POWLAN

Subject: Technical Assistance in the Development of
Conventional Energy under USAID

Dear Mr. Alam:

We have reviewed the recent correspondence from Petrobangla proposing significant revision of the program of technical assistance being provided by Bechtel. Under no circumstances would we wish to provide assistance that is considered inappropriate or unnecessary by the Bangladesh Government. At the same time, our assistance funding must be justified within the U.S. Government on the basis of its developmental impact. The purpose of this letter is to discuss the objectives and content of the Bechtel contract from these perspectives.

As you are aware, this program was designed to improve the development, production and delivery of natural gas in Bangladesh. It was based on the conclusions of an Arthur D. Little study and was the result of considerable discussion with the Ministry of Energy, Petrobangla and the Ministry of Finance and Planning before being finalized in a Grant Agreement last February.

We have again reviewed the Bechtel plan for accomplishing the three principal objectives of the program - viz, developing gas reserve data, improving the natural gas supply system and improving drilling operations. Bechtel has proposed a four-part effort which addresses the data collection, exploration, production and training needs of Petrobangla. We believe this to be a logical and reasonable approach. We appreciate that the Data Center represents a most important aspect of the program and Bechtel will

continue to give this primary emphasis. However, the components of this entire program are closely inter-related. Expanding the data center effort by reducing the level of effort of other activities would damage the impact of the whole effort and would make it very difficult for us to justify proceeding. In addition, if some components were to be eliminated, it would be necessary to return any residual funds to the U.S. Treasury, ~~and it may be necessary to reassess the value of proceeding with the project.~~

We appreciate Petrobangla's concern with contract costs; however, Bechtel services are provided under a Washington-based contract with AID which establishes overhead rates, salary scales, allowances budget and other terms and conditions of Bechtel assistance regardless of the recipient country. These terms and conditions were negotiated at the time of contract signing and are not subject to additional review when individual country work plans are being considered. In this regard, the line item for overhead, e.g., can not be reduced and the amount for equipment increased.

Bechtel has re-examined the Bangladesh budget and schedule and now expects to complete all planned activities by March 1984, releasing approximately \$30,000 for any additional equipment which may be essential to the initial operation of the Data Center. This might, include e.g., a photocopier with collating and size reduction features. Audio-visual equipment and airconditioners are already being financed. Unfortunately, AID can not consider funding additional equipment under this technical assistance activity. We recommend that you explore the possibility of complementary funding from other donors for further capital assistance.

We hope this activity can continue to proceed as ^{agreed} ~~regard~~. However, if you believe that it would be useful to discuss this matter further then please do not hesitate to call.

Sincerely,

James A. Norris
Director

Clearance: PDE/RBird (draft)
DD(A)/WBoehm (draft)

PDE/JSchneider:anam
08/22/83:

Appendix E

**CABLE FROM S&T/EY TO USAID MISSION
DHAKA RECOMMENDING TERMINATION OF
THE TECHNICAL ASSISTANCE PROGRAM**

DATED NOVEMBER 1983

ACTION	
AMB	✓
CHG	✓
DCM	
POL	
ECON	✓
USIS	
DAO	
CONS	
AID	
AGR	
ADMIN	
GSO	
RSO	

P 150505Z NOV 83
 FM SECSTATE WASHDC
 TO AMEMBASSY DHAKA PRIORITY 3849
 BT
 CUNCLAS STATE 325130

AIDAC

E.O. 12356: N/A

TAGS:

SUBJECT: CONVENTIONAL ENERGY TECHNICAL ASSISTANCE
 (936-5724)

REF: (A) ST/EY (BLISS) TDY, DHAKA, 1-7 OCTOBER 1983, (B)
 DHAKA 7979

1. DURING REF (A) TDY, ISSUE OF WHETHER TO TERMINATE TA PROJECT OR TO RESTRUCTURE ACTIVITY TO FOCUS ON A GEOLOGICAL DATA CENTER DEVELOPMENT WAS DISCUSSED. RESULTS ARE IN BLISS TRIP REPORT.

2. REF (3), PARA. 1, STATES THAT PER DISCUSSIONS WITH BLISS MISSION HAS SUBMITTED REVISED PROJECT AGREEMENT TO BDG AND GIVEN THEM UNTIL DECEMBER 1 TO COUNTERSIGN, OTHERWISE PROJECT TERMINATES.

3. PRIOR TO RECEIVING REFTEL (B), AID/W REVIEWED REF (A) TTX FINDINGS, AND CONCLUDED TERMINATION IS THE PREFERRED OPTION. BASIC REASONS FOR THIS PREFERENCE ARE:

[Handwritten initials and date]
 11/20

CPO	
MED	
B&F	
TRAVEL	
PER	
NCOIC	
MAILRM	
RF	
CHIRON	✓

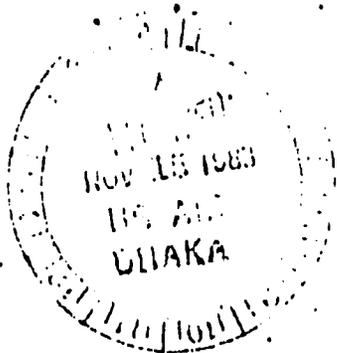
(A) CHANGE IN PRIORITIES. PRIORITY IN CURRENT LETTER OF AGREEMENT EMPHASIZES ASSESSMENT OF NATION'S NATURAL GAS RESOURCE. PRIORITY HAS NOW SHIFTED. THE ACQUISITION OF NEW SEISMOGRAPHIC DATA THROUGH A WORLD BANK HYDROCARBON LOAN OVER A TWO-YEAR PERIOD THROUGH DECEMBER 1985 IS NOW PREREQUISITE FOR THE ASSESSMENT. THE BDG HAS DEFERRED THE ASSESSMENT ACTIVITIES AND NOW STATES THE IMMEDIATE TECHNICAL ASSISTANCE NEED IS FOR THE ESTABLISHMENT AND OPERATION OF A NEW GEOLOGICAL DATA-CENTER IN CONJUNCTION WITH THE WORLD BANK FUNDED ACTIVITIES; ALTHOUGH, ENERGY TECHNICAL ASSISTANCE ACTIVITIES SO FAR HAVE RESULTED, AT LEAST, IN THE PHYSICAL ESTABLISHMENT OF SUCH A CENTER, ST/EY BELIEVES THE REMAINING TECHNICAL ASSISTANCE EFFORTS CAN EASILY BE INCORPORATED WITHIN THE PROSPECTIVE WORLD BANK LOAN ACTIVITIES.

(B) CONTRARY TO EXPECTATIONS WHEN ORIGINAL BANGLADESH INTEREST WAS EXPRESSED IN 1980/1981 FOR A CONVENTIONAL ENERGY TECHNICAL ASSISTANCE PROJECT, MISSION NOW HAS NO PLAN FOR MISSION-FUNDED FOLLOW-ON OF THE ACTIVITIES BEGUN WITH CENTRAL FUNDS. WITHOUT THIS FOLLOW-ON SUPPORT, ST/EY CANNOT JUSTIFY CONTINUATION OF COUNTRY ACTIVITIES.

(C) NO PROGRESS HAS OCCURRED IN DIALOGUE ON POLICY REFORMS RELATING TO INVOLVEMENT OF PRIVATE INVESTMENT IN EXPLORATION AND PRODUCTION.

4. IN LIGHT OF STATUS OF DISCUSSIONS WITH BDG (RETEL (B)), AID/W WOULD APPRECIATE MISSION ADVICE ON HOW BEST TO PROCEED. WE PREFER CURRENT PROJECT ACTIVITIES TO TERMINATE WITH DEPARTURE OF BECHTEL'S RESIDENT MANAGER AT EARLIEST PRACTICAL DATE. BEFORE DEPARTURE, RESIDENT WOULD PROVIDE MISSION AND AID/W WITH DRAFT COMPLETION REPORT COVERING ACCOMPLISHMENTS AS REQUIRED UNDER ST/EY CONTRACT WITH BECHTEL. SHULTZ
BT

#5130



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Appendix F

CONTRACTING OFFICER LETTER OF PARTIAL
TERMINATION

DATED JANUARY 31, 1984

AID MISSION LETTER REGARDING PROPERTY
DISPOSITION

DATED FEBRUARY 5, 1984

UNITED STATES OF AMERICA
AGENCY FOR INTERNATIONAL DEVELOPMENT
Dacca, Bangladesh

February 5, 1984

Mr. Frank Powlin
Bechtel National, Inc.
House 9, Road 36
Gulshan

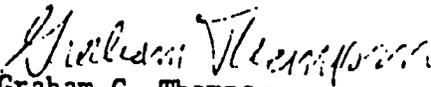
Subject: Technical Assistance in Conventional Energy
AID Project No. 936-5724
Contract No. DAN-5724-C00-1085-00

Dear Frank:

This is to advise you that the AID Contracting Officer has issued a termination notice, effective January 31, 1984, for Bechtel field activities in Bangladesh under the subject contract. A copy of the notice will be forwarded to you when received in Dhaka. All U.S. Government property is to be delivered to USAID prior to your closing your office; as you know, Mrs. Goff in our General Services Office will assist you with this.

Thank you for your cooperation.

Sincerely yours,


Graham C. Thompson
Chief
Project Dev. & Eng. Division

UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON DC 20523

Mr. J. R. Schyberg
Sr. Contracts Administrator
Bechtel National, Inc.
50 Beale Street
P.O. Box 3965
San Francisco, CA 94117

JAN 31 1984

RECEIVED

FEB 07 1984

Subject: Contract DAN-5724-C-00-1085-00 - Bechtel Job No.
15056 - Notice of Partial Termination -Bangladesh

Dear Mr. Schyberg:

I have succeeded Mr. Phillip Casteel as the cognizant Contracting Officer for this contract.

In accordance with General Provision 23 - Termination for Default or the Convenience of the Government, you are hereby notified that this contract is partially terminated for the convenience of the Government with respect to field activities in Bangladesh, effective January 31, 1984. This partial termination is a ratification of instructions furnished in December, 1983 by the Government's technical representative, Mr. Charles Bliss, AID, Office of Energy.

You are directed to stop field work as of the above date, or as soon thereafter as is absolutely possible, and prepare the final report required by the contract concerning the Bangladesh activities to date. This termination applies only to activities in Bangladesh and does not decrease the total level of effort in the contract permitting any remaining level of effort to be reprogrammed to other activities under the contract at AID's discretion. Further requirements are specified in the above referenced General Provision.

In summary you are to proceed as follows:

- (a) Stop work on the terminated portion of the contract and discontinue placing subcontracts thereunder;
- (b) Terminate all subcontracts related to the terminated portion of the prime contract;
- (c) Immediately advise me of any special circumstances precluding the stoppage of work;
- (d) Perform the continued portion of the contract and submit promptly any request for an equitable adjustment of fee with respect to the continued portion of the contract, supported by evidence of any increase in the cost thereof;
- (e) Take such action as may be necessary to protect and preserve property in the possession of the contractor

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in which the Government has or may acquire an interest; and deliver such property to the USAID Mission in Bangladesh;

- (f) Promptly notify me in writing of any legal proceedings growing out of any subcontract or other commitment related to the terminated portion of the contract;
- (g) Settle all outstanding liabilities and all claims arising out of termination of subcontracts, and;
- (h) Promptly submit a settlement proposal, supported by appropriate schedules.

The USAID Mission in Bangladesh has been advised of this termination and requested to assist you in the transfer of Government property in the possession of your field representative, and his departure from the field.

If you have any questions concerning this notice, please contact Mr. Kenneth A. Monsess of my staff on (703) 235-9114. Please acknowledge receipt of this notice by signing below and returning a copy to me.

Sincerely yours,


Wesley L. Hawley
Contracting Officer
Regional Operations Division-LAC
Office of Contracts Management

ACKNOWLEDGEMENT OF NOTICE

The undersigned hereby acknowledges receipt of a signed copy of the foregoing Notice on JANUARY 31, 1984

BECHTEL NATIONAL, INC
(Name of Contractor)

By J R Schuyberg

SENIOR CONTRACTS ADMINISTRATOR
(Title)



Appendix G

LETTER NOTIFYING THE EXTERNAL RESOURCES
DIVISION, MINISTRY OF FINANCE AND
PLANNING, OF AID TERMINATION

DATED FEBRUARY 5, 1984

UNITED STATES OF AMERICA

AGENCY FOR INTERNATIONAL DEVELOPMENT

Dacca, Bangladesh

RECEIVED

FEB 9 1984

F. Y. POWLAN

February 5, 1984

Mr. Martin Lasker
Deputy Secretary
External Resources Division
Ministry of Finance & Planning
Block 8, Room 13/A
Sher-e-Bangla Nagar
Dhaka

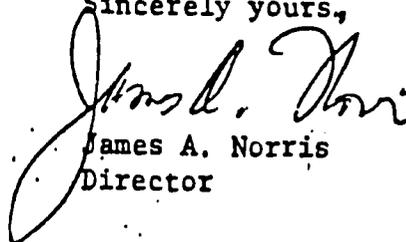
AID Letter No... 172

Subject: Technical Assistance in Conventional Energy
AID Project No. 936-5724

Dear Mr. Lasker:

This is to advise you that we have terminated our program of technical assistance in the development of conventional energy in Bangladesh and instructed Bechtel to conclude their activities here, effective January 31, 1984. As you are aware, a considerable amount of AID, Bechtel and Ministry of Energy staff time has been absorbed by this effort but, unfortunately, for a number of reasons which I believe you are familiar with, there has been little progress in either establishing the Petrobangla Data Center as a working entity or in meeting the other objectives of the program. Given the small level of our investment in the conventional energy sector compared to that of the other donors, we have concluded that this is the appropriate time to discontinue our involvement in this area.

Sincerely yours,



James A. Norris
Director

cc: Mr. Frank Powlin
Bechtel National, Inc.
House 9, Road 36
Gulshan

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